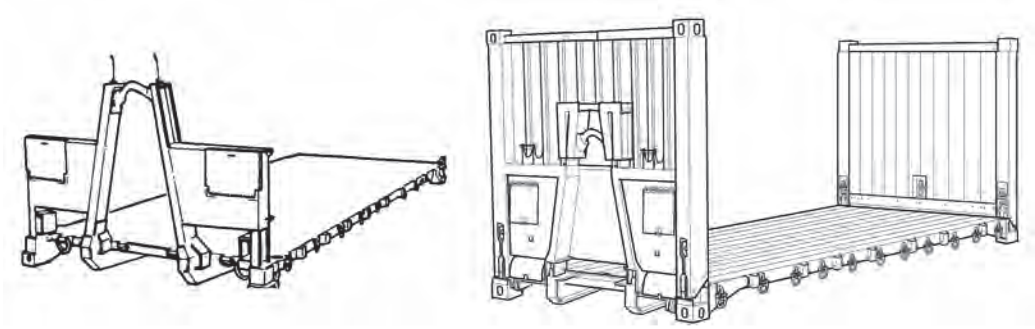
TM 9-3990-206-10

OPERATOR MANUAL
FOR

PALLETIZED LOAD SYSTEM (PLS) FLATRACK M1077/M1077A1 NSN 3990-01-307-7676

ISO COMPATIBLE PALLETIZED FLATRACK (IPF) M1 NSN 3990-01-406-1340



SUPERSEDURE NOTICE - This manual supersedes TM 9-3990-206-10 dated 30 April 2009.

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HEADQUARTERS, DEPARTMENT OF THE ARMY
31 MAY 2017

WARNING SUMMARY

GENERAL SAFETY CAUTION/WARNING SUMMARY

- This list summarizes critical warnings. They are repeated here to let you know how important they are.
- Study these warnings carefully.
- They can save your life and the lives of personnel you work with.
- If there is any doubt about handling tools, materials, equipment, and procedures, see TB 43-0216, Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment.

FOR INFORMATION ON FIRST AID:

For first aid, refer to TC 4-02.1, First Aid.

WARNING

MODIFICATION HAZARD

- Unauthorized modifications to, alterations to, or installations on this equipment are prohibited and are in violation of AR 750-10.
- Failure to comply may result in injury or death to personnel or damage to equipment.

WARNING

HIGH-PRESSURE HYDRAULIC SYSTEM

- Hydraulic systems can cause serious injuries if high-pressure lines or equipment fails.

- Never work on hydraulic systems or equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and can give first aid.
- Never disconnect any hydraulic hose or part while the engine is running. Allow several minutes to elapse after shutting off engine, to allow pressure to relieve itself, before attempting to remove hoses. Failure to comply may result in injury to personnel.
- The PLS vehicles contain hydraulic systems operating at oil pressures up to 3,700 psi (25,512 kPa). Never disconnect any hydraulic line or fitting without first dropping the pressure to zero. Failure to comply may result in serious injury or death to personnel.
- Be sure to wear eye protection when working around hydraulic pressurized systems. Failure to comply may result in serious injury or death to personnel.

WARNING

ELECTRICAL SYSTEM

- Remove all jewelry, such as rings, ID tags, bracelets, etc. If jewelry or tools contact electrical circuits, a direct short may result. Failure to comply may result in serious injury or death to personnel.
- Do not smoke, use open flame, make sparks or other ignition sources around batteries. A battery giving off gas could explode. Failure to comply may result in serious injury or death to personnel.
- Be careful when working on or with electrical equipment. Do not be misled by the term "low voltage". Voltages as low as 50 volts can cause death. For artificial respiration, refer to FM 4-25.11.
- When working inside the vehicle with power off, be sure to ground every capacitor likely to hold a dangerous voltage potential.
- Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment.

WARNING

SOLVENT CLEANING COMPOUND

- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in a well-ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.
- The flashpoint for Type II solvent cleaning compound is 141-198°F (61-92°C), and Type III is 200-241°F (93-116°C).
- Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.
- Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.
- Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.
- Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particles may cause injury.

WARNING

POLYURETHANE COATING (CARC)

- Eye and hearing protection must be worn at all times when using power tools for grinding, cutting, sawing, and drilling. Failure to do so may result in injury to personnel. Chemical Agent Resistant Coating (CARC) paint contains isocyanate which is highly irritating to skin and respiratory system. High concentrations of isocyanate can produce symptoms of itching and reddening of skin, a burning sensation in the throat and nose, and watering of the eyes. In extreme concentrations, isocyanate can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention.
- The following precautions must be taken whenever using CARC paint:
- Protective equipment (gloves, goggles, ventilation mask) must be worn when using CARC paint.
- NEVER cut CARC-coated materials without high-efficiency, air-purifying respirators in use.
- DO NOT grind or sand painted equipment without high-efficiency, air-purifying respirators in use.
- BE AWARE of CARC paint exposure symptoms; symptoms can occur a few days after initial exposure. Seek medical help immediately if symptoms are detected.
- Use only in well-ventilated area. Check with local environmental office for methods and locations approved for painting in accordance with local and state environmental regulations.
- Always use air line respirators when using CARC paint unless air sampling shows exposure to be below standards. Use chemical cartridge respirator if air sampling is below standards.

WARNING

ADHESIVE

- Adhesive, solvents and sealing compounds can burn easily and are harmful causing immediate bonding on contact with eyes, skin, or clothing and gives off harmful vapors.
- If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.
- If adhesive gets in your eyes, try to keep them open; flush them with water for 15 minutes and get immediate medical attention.
- Wear protective goggles and use in a well-ventilated area.
- Keep away from open fire and use in well-ventilated area to avoid injury or death.

WARNING

FLAMMABLE LIQUID AND COMBUSTIBLE VAPOR

- Gasoline, fuel oil, lubricating oil, grease, paint, paint thinner, cleaning solvents, and other combustible liquids present a serious fire hazard.
- Combustible liquids must ALWAYS be stored in their approved containers and designated compartments or deck storage locations.
- Ensure exhaust and ventilation fans are operating while using cleaning solvents or paint products.
- Never store or charge batteries in a confined space without ventilation or near electrical equipment.
- Fuel is very flammable and can explode easily.
- To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel.

- Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine.
- When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.
- Starting fluid is toxic and flammable. Do not store in cab and do not breathe fumes. Do not puncture or burn containers. Dispose of container following manufacturer's recommendations on the container.

WARNING

LIFTING OPERATIONS

- All personnel must stand clear during lifting operations. A swinging or shifting load may cause injury or death to personnel.
- Never crawl under equipment when performing maintenance unless equipment is securely blocked. Failure to comply may cause injury or death to personnel.
- Keep clear of equipment when it is being raised or lowered. Failure to comply may cause injury or death to personnel.
- Do not work on any item supported only by lift jacks or hoist. Always use blocks or proper stands to support the item prior to any work. Failure to comply may result in injury or death to personnel.
- Do not lift a load greater than the rated load capacity of the crane or materiel handling equipment. Failure to comply may result in injury or death to personnel or damage to equipment.
- Do not allow heavy components to swing while hanging by lifting device. Failure to comply may cause injury or death to personnel.
- Any part or component that weighs between 50 lbs (23 kg) and 75 lbs (34 kg) must be removed with the aid of an assistant. Any part or component that weighs over 75 lbs (34 kg) must be removed with the aid of an assistant and a lifting device. Failure to comply may cause injury or death to personnel.
- Ensure all chains, hooks, and slings are in good condition and are of correct capacity. Ensure hooks are positioned correctly. Failure to comply may result in injury or death to personnel.

WARNING

MOVING MACHINERY

- Use extreme care when operating or working near moving machinery including running engine, rotating shafts, and other moving parts. Failure to comply may result in injury or death to personnel.
- Use extreme care when measuring voltage while engine is running around rotating fan blade and hot engine parts. Failure to comply may result in injury or death to personnel.

WARNING

HEAVY-DUTY WINCH OPERATION

- All personnel must stand clear during winching operations from possible snapping cable or shifting load. Failure to comply may result in injury or death to personnel.
- When hooking up for winching operations, position throat (open part) of hook upward in case overloading straightens out hook. Failure to comply may result in injury or death to personnel.
- The cable drum requires a minimum of three or four wraps of wire rope (cable) for safety. Failure to comply may result in injury or death to personnel.
- Be careful when handling the winch cable. Ensure cut ends are taped. Ensure cut ends of cable on winch assembly are securely fastened down. Failure to comply may result in injury or death to personnel.
- Always wear leather gloves when handling winch cable. Failure to comply may result in injury or death to personnel.

WARNING

LOAD HANDLING SYSTEM OPERATION

- Check for overhead power lines, ground condition for firmness, and other obstructions before attempting LHS operation.
- LHS hook maximum lifting height is 18 ft (5.5 m). Failure to comply can result in injury or death to personnel.

WARNING

PARTS UNDER PRESSURE

- Wear safety goggles and use caution when removing or installing springs, snap rings, retaining rings, and other parts under spring tension. These parts can act as projectiles. Failure to comply may result in injury or death to personnel.
- The radiator is very hot and pressurized during vehicle operation. Let radiator cool before removing cap. Failure to do so can result in serious burns.
- During pressure tests, ensure air pressure is drained to 0 psi (0 kPa) before taking off any components. If pressure is not released, plates or line could blow off and harm personnel. Do not drain air from tank with any part of body in air spray path. Skin embolisms and/or debris in eyes can occur from released pressure.
- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Stand clear of trajectory area during deflation or personal injury or death may result.

- Lock-ring is under tension. If lock-ring breaks loose it could cause injury to personnel. Keep hands and fingers away from lock-ring when removing.
- Never adjust relief valve so that personnel must stand on strongback to operate latch.
- If there is any residual pressure in tank when relief valve is open, personnel may lose their balance and fall. Failure to comply may result in injury or death to personnel.
- Use extreme care when removing or installing spring retainers. Spring retainers are under tension and can act as projectiles when released suddenly. Ensure proper eye protection is worn to prevent injury to personnel.
- Use extreme care when removing or installing springs. Springs are under tension and can act as projectiles when released. Ensure proper eye protection is worn to prevent injury to personnel. Eye protection is required during all grinding operations. Failure to comply may result in serious injury to personnel.
- Failure to relieve tank pressure may result in sudden, unexpected loss of pressure. Failure to comply may result in personal injury or death.
- Do not remove the radiator cap when the engine is hot, as steam and hot coolant can escape. Failure to comply may result in personal injury or death.

WARNING

HEAVY PARTS

Any part or component that weigh over 50 lbs (23 kg) must be removed with the aid of an assistant and a lifting device. Failure to comply may result in personal injury or death.

WARNING

CRANE SYSTEM

- Always refer to the range diagram BEFORE making any lift. It is extremely important that the crane is properly leveled to prevent overstressing.
- Do not operate crane unless outriggers are set up. Always chock front wheels when using outriggers. Failure to comply may result in injury or death to personnel.
- When using crane on any vehicle, park vehicle clear of all overhead powerlines. If operating crane under power lines, do not allow vehicle to contact high-voltage connections. Failure to comply will result in death to personnel.
- Do not stand under crane. Failure to comply may result in injury or death to personnel.
- Refuse to work with worn, frayed, or damaged wire rope. Always wear heavy gloves when handling winch cables; never let cable run through hands. Frayed cables can cut. Never operate winch with less than five wraps of cable on winch drum. Failure to comply may result in injury or death to personnel.
- When using crane on any vehicle, park vehicle clear of all overhead power lines. Do not operate crane near overhead power lines. Failure to comply may result in injury or death to personnel.
- Boom has a 370 degree rotation and is mechanically stopped at five degrees on either side of the left outrigger beam. Swing operations must be slowed no later than 15 degrees prior to contacting the stop.
- Keep boom clear of electrical powerlines and other obstacles. Do not operate crane near overhead powerlines. Failure to comply will result in death to personnel.
- Avoid quick, jerking, winch operation. Keep other personnel well away from vehicles involved in winching operations. A snapped cable or shifting load can cause serious injury or death.
- If possible, keep one hand away from equipment to reduce the hazard of current flowing through vital organs of the body.

- Keep fingers clear of top of lift-hook. Failure to comply could result in personnel injury.

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH

- Carbon monoxide does not have color or smell and can cause death.
- Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling and coma. Brain damage or death can result from heavy exposure.
- Carbon monoxide is in exhaust fumes of fuel-burning heaters and internal combustion engines.
- Carbon monoxide can become dangerously concentrated under conditions of no ventilation.
- Precautions must be taken to ensure crew safety when the personnel heater or engine of any vehicle is operated for any purpose. Failure to comply may result in injury or death to personnel.
- DO NOT operate vehicle engine in a closed place unless the place has proper ventilation. Failure to comply may result in injury or death to personnel.
- DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes. Failure to comply may result in injury or death to personnel.
- BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either odor or exposure symptoms are present, IMMEDIATELY VENTILATE personnel compartments. If symptoms continue, remove affected crew to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 4-25.11 . Failure to comply may result in injury or death to personnel.
- BE AWARE that the gas particulate filter unit or the field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.

WARNING

EXTREME HEAT

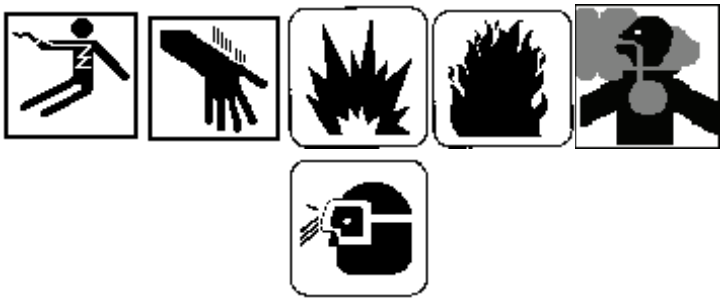
If required to remain inside the vehicle during extreme heat, occupants should follow the water intake, work/rest cycle, and other heat stress preventive medicine measures contained in FM 21-10, Field Hygiene and Sanitation.

WARNING

CABLES

- Always wear heavy gloves when handling winch cables; never let cable run through hands. Frayed cables can cut. Failure to comply may result in injury or death to personnel.
- Never operate winch with less than five wraps of cable on winch drum. Frayed cables can cut. Failure to comply may result in injury or death to personnel.

WARNING



BATTERY

- Battery acid is harmful to skin and eyes. Be careful not to short out battery terminals. Failure to comply may result in injury or death to personnel.
- Do not smoke or use open flame near batteries. Batteries may explode from a spark. Failure to comply may result in injury or death to personnel.

WARNING

NBC

- NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel.
- The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-11.4) is used, and prescribed safety measures and decontamination procedures (FM 3-11.5) are followed.
- The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

WARNING

TIRE OPERATION

- Operating a vehicle with a tire in an overinflated or underinflated condition, or with a questionable defect, may lead to premature tire failure. Ensure tire has proper tire pressure. Failure to comply may result in injury or death to personnel.
- When inflating tires mounted on the vehicle, all personnel must remain out of trajectory of the side ring and lock-ring as shown by the areas indicated. Failure to follow proper procedures may result in serious injury or death to personnel.
- Cracked, broken, bent or otherwise damaged rim components shall not be reworked, welded, brazed, or otherwise heated or damage or personal injury or death may result.
- No heat shall be applied to a multi-piece wheel or wheel component or damage or injury or death may result.
- Failure to place wheel/tire assembly in safety cage prior to initial inflation could result in serious injury or death to personnel.
- When a wheel/tire is in a restraining device, do not rest or lean any part of body or equipment on or against the restraining device, or injury or death could result.
- While changing tires or while performing tire maintenance, stay out of the trajectory path. Failure to comply may result in injury or death to personnel.
- Always use an inflation hose with an in-line gauge and a clip-on chuck when inflating tires. The gauge and valve must be mounted a minimum of 10 feet (3.10 m) away from air chuck.
- High air pressure may be released from valve stem when valve core is removed. Stay clear of valve stem after core is removed. Ensure all personnel wear suitable eye protection. Failure to comply may result in injury to personnel.
- Tire is heavy. Brace tire to ensure tire will not fall over on you or on others.

WARNING

VEHICLE OPERATION

- Speed limits posted on curves reflect speeds that are considered safe for automobiles. Heavy trucks with a high center of gravity can roll over at these speed limits. Use caution and reduce your speed below the posted limit before entering a curve. Failure to comply may result in vehicle crash and injury to personnel.
- Use caution and reduce your speed below the posted limit before entering a curve. Failure to comply may result in vehicle crash and injury to personnel.
- Always use seatbelts when operating vehicle. Failure to use seatbelt can result in serious injury or death in case of accident.
- Operation at speeds over 15 mph (24 kph) on paved roads can be achieved when the operator determines that the vehicle being towed and the terrain allow safe operation.
- Under no condition can speeds over 35 mph (55 kph) on paved road and 15 mph (24 kph) off-road be allowed. Loss of control can cause serious injury or death. Excessive speed can cause damage to vehicle being towed.

WARNING

BRAKES

- Ensure all personnel are clear from front of truck before performing brake stall check. Be ready to apply service brake. Operator must remain in cab while performing this check. Failure to comply could result in personnel injury.
- Never use parking brake for normal braking or wheels will lock up causing severe skid. Skidding vehicle may result in serious personal injury or death.

- Do not use trailer brakes as a parking brake. Trailer brakes may not hold loaded vehicle and trailer on a grade. A runaway vehicle may cause severe personal injury or death.
- Engine must be shut OFF and parking brake set before performing PMCS walkaround. Failure to comply may result in injury or death to personnel.

WARNING

BURNS

The exhaust pipe and muffler can become very hot during vehicle operation. Be careful not to touch these parts with bare hands, or allow body to come in contact with exhaust pipe or muffler. Exhaust system parts can become hot enough to cause serious burns.

WARNING

HEARING PROTECTION

- Excessive noise levels are present any time the heavy-duty winch or crane is operating.
- Wear single hearing protection (earplugs or equivalent) while working around equipment while it is running. Failure to do so could result in damage to your hearing.
- Seek medical aid should you suspect a hearing problem.

WARNING

COMPRESSED AIR

- Brake shoes may be coated with dust. Breathing this dust may be harmful to your health.
- Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury or death to personnel.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa).
- Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE:

This manual supersedes TM 9-3990-206-10 dated 30 April 2009. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original 31 May 2017

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 40 AND TOTAL NUMBER OF WORK PACKAGES IS 36, CONSISTING OF THE FOLLOWING:

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 31 MAY 2017

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FOR

PALLETIZED LOAD SYSTEM (PLS) FLATRACK
M1077/M1077A1
NSN 3990-01-307-7676

ISO COMPATIBLE PALLETIZED FLATRACK (IPF)
M1
NSN 3990-01-406-1340

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms) through the Internet on the TACOM Unique Logistics Support Applications (TULSA) Web site. The Internet address is https://tulsa.tacom.army.mil. Access to all applications requires CAC authentication, and you must complete the Access Request form the first time you use it. The DA Form 2028 is located under the TULSA Applications on the left-hand navigation bar. Fill out the form and click on SUBMIT. Using this form on the TULSA Web site will enable us to respond more quickly to your comments and to better manage the DA Form 2028 program. You may also mail, e-mail, or fax your comments or DA Form 2028 directly to the U.S. Army TACOM Life Cycle Management Command. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-IMP/TECH PUBS, MS 727, 6501 E. 11 Mile Road, Warren, MI 48397-5000. The e-mail address is usarmy.detroit.tacom.mbx.ilsc-tech-pubs@mail.mil. The fax number is DSN 786-1856 or Commercial (586) 282-1856. A reply will be furnished to you.

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HOW TO USE THIS MANUAL

USABLE ON CODE (UOC) INFORMATION

Usable On Code (UOC) - the user should be aware that the M1077/M1077A1 Palletized Load System (PLS) Flatrack UOC is "077" and the M1 ISO Compatible Palletized Flatrack (IPF) UOC is "IPF". Depending on the format used for printing this manual, the user may not see instructions printed in this manual stating what information is applicable to which model PLS series vehicle by UOC.

PRECEDENCE

The PLS Interactive Electronic Technical Manual (IETM) TM 9-2320-364-14&P takes precedence over this manual. The purpose of this manual is to give the operator a usable operator's manual in the absence of the IETM, NOT to take the place of the IETM.

Updates and revisions to this manual can be found within the PLS Interactive Electronic Technical Manual (IETM) TM 9-2320-364-14&P. Activities should regularly check the IETM for updates and revisions to this manual.

WARNINGS, CAUTIONS, AND NOTES

Read all WARNINGS, CAUTIONS, and NOTES before performing any procedure.

Warnings, cautions, notes, subject headings, and other essential information are printed in **BOLD** type, making them easier for the user to see.

GENERAL INFORMATION

This manual is designed to help operate and maintain the Palletized Load System (PLS) Flatrack and ISO Compatible Palletized Flatrack (IPF). Listed below are some features included in this manual to help locate and use the required information:

- Chapter 1 of this manual includes PLS Flatrack and IPF general information, theory of operation, differences between models, etc.
- Chapter 2 of this manual provides operating procedures for both the PLS Flatrack and IPF, and its accompanying operating systems.
- Chapter 3 of this manual provides operator troubleshooting procedures for both the PLS Flatrack and IPF, and its accompanying operating systems.
- Chapter 4 of this manual provides operator Preventive Maintenance Checks and Services (PMCS) for both the PLS Flatrack and IPF.

In addition to text, there are illustrations showing:

1. Components, controls, and indicators.
2. How to take a component off, and put it back on.
3. Cleaning and inspection criteria are also listed when necessary.

CHAPTER 1

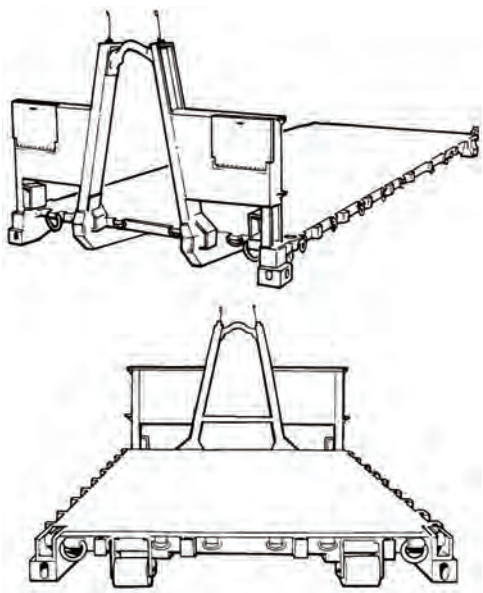
GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION

OPERATOR MAINTENANCE
GENERAL INFORMATION

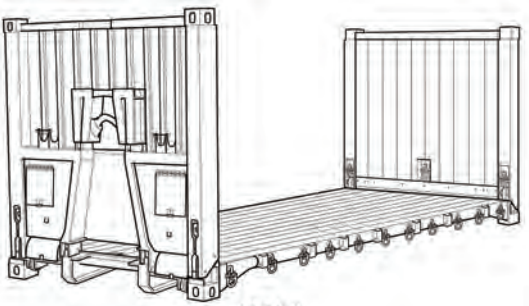
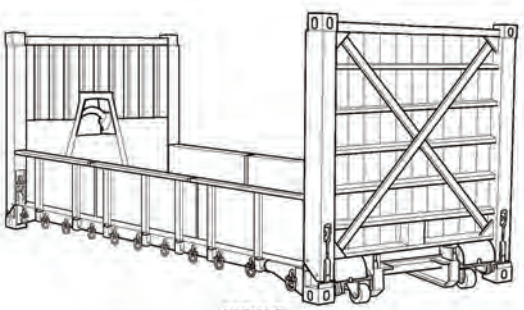
SCOPE

This manual is used for operation and operator-performed maintenance of Palletized Load System M1074 and M1075 series vehicles, M1076 PLS Trailers, M1077 Flatracks, and M1 ISO Compatible Flatracks. M1074 series vehicles are similar to M1075 except for the addition of a Material Handling Crane (MHC) and Self-Recovery Winch (SRW) kit. Models are as follows:

***** The following is applicable to model(s) 077 IPF. *****

MODEL	DESCRIPTION
M1077	The M1077 flatrack is designed specifically for use with the Palletized Load System (PLS). The flatrack is used as a movable cargo bed for the vehicle and Palletized Load System Trailer (PLST). 

SCOPE - Continued

MODEL	DESCRIPTION
M1 ISO Compatible Flatrack	The M1 flatrack is a flat cargo body with folding end walls, designed specifically for use with the Palletized Load System (PLS). The flatrack is designed to be loaded on the PLS using the Load Handling System (LHS).  VIEW A  VIEW B

MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS) User Manual.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

The quarterly TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest contains valuable field information on equipment covered in this manual. Information in the TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest is compiled from some of the Equipment Improvement Reports (EIR) that have been prepared

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR) - Continued

on vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that were submitted to the EIR program. TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWOs), warranties (if applicable), actions taken on some of the DA Form 2028 (WP 0034) (Recommended Changes to Publications and Blank Forms), and advance information on proposed changes that may affect this manual. Refer to the TB 43-0001-62 (series) Equipment Improvement Report and Maintenance Digest periodically for the most current and authoritative information on the equipment. The information will help to do a better job and will advise of the latest changes to this manual. Also refer to DA PAM 25-30, Consolidated Index of Army Publications and Blank Forms at http://www.army.mil/usapa/2530.html, and reference section of this manual. If you have a change recommendation to this manual, submit a DA Form 2028 (WP 0034) (Recommended Changes to Publications and Blank Forms) via e-mail to: tacomlcmc.daform2028@us.army.mil.

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (WP 0034) (Recommended Changes to Equipment Technical Publications and Blank Forms) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is https://aeps.ria.army.mil. The DA Form 2028 (WP 0034) is located under the Public Applications section in the AEPS Public Home Page. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or e-mail your letter or DA Form 2028 (WP 0034) direct to: TACOM Life Cycle Management Command, ATTN: AMSTA-LC-LMPP / TECH PUBS, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is tacomlcmc.daform2028@us.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

HAND RECEIPT (HR) INFORMATION

The TM 9-2320-364-10-HR (Hand Receipt) is a companion document to this manual, which consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (COEI, BII, (WP 0035) and AAL) which must be accounted for. As an aid to property accountability, additional Hand Receipt (-HR) Manuals may be requisitioned from the following source in accordance with procedures in DA PAM 25-30, Consolidated Index of Army Publications and Blank Forms; Commander US Army Distribution Operation Facility, 1655 Woodson Road, St Louis, MO 63114-6181.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion prevention and control (CPC) of Army material is a continuing concern. It is important that any corrosion problems be reported so they can be corrected and improvements can be made to prevent problems in the future. While corrosion is typically associated with the rusting of metals, it can also include deterioration of other materials,

CORROSION PREVENTION AND CONTROL (CPC) - Continued

such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF 368 (WP 0034). The use of key words, such as "corrosion", "rust", "deterioration", and "cracking" will ensure that the information is identified as a CPC problem.

DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE

Command decision, according to the tactical situation, will determine when the destruction of the equipment will be accomplished. A destruction plan will be prepared by the using organization unless one has been prepared by a higher authority. Refer to TM 750-244-6, (WP 0034) Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use, for general destruction procedures.

PREPARATION FOR STORAGE OR SHIPMENT

See information on preparing the PLS series vehicles, trailers, and flatracks for storage or shipment.

WARRANTY INFORMATION

The PLS is warranted by Oshkosh Truck Corporation for 12 months. For complete information covering this warranty refer to TB 9-2320-364-15, (WP 0034) Warranty Procedures for Vehicle, Tractor, M1074 and M1075, Palletized Load System (PLS) NSN 2320-01-304-2277 and 2320-01-304-2278. Trailer and flatrack warranty starts on the date found in block 23, DA Form 2408-9, (WP 0034) in logbook. Report all defects in materiel or workmanship to the supervisor, who will take appropriate action.

NOMENCLATURE CROSS-REFERENCE LIST

Table 1.

Common Name	Official Nomenclature
Cable	Wire rope
Cold Start System	Ether quick start system
Engine Coolant	Antifreeze, ethylene glycol mixture
Glad Hand	Quick disconnect air coupling
Jackstand	Trestle

NOMENCLATURE CROSS-REFERENCE LIST - Continued

Table 1. - Continued

Common Name	Official Nomenclature
Jake Brake	Engine brake
Service Brake Pedal	Brake pedal
Throttle Pedal	Throttle control
Towing Eye	Drawbar lunette
Towing Pintle	Self-guiding coupler

LIST OF ABBREVIATIONS

Table 2.

AAL	Additional Authorization List
AC	Alternating Current
amp	Amperes
AOAP	Army Oil Analysis Program
ATEC	Allison Transmission Electronic Control
BII	Basic Issue Item
BOI	Basis of Issue
C	Centigrade
CAGE	Commercial and Government Entity
CBR	Chemical, Biological, Radiological
CCA	Cold Cranking Amps
CCW	Counterclockwise

LIST OF ABBREVIATIONS - Continued

Table 2. - Continued

CHU	Container Handling Unit
CID	Cubic Inch Displacement
CKT	Circuit
cm	Centimeter
COEI	Components of End Item
CTA	Common Table of Allowance
CTIS	Central Tire Inflation System
CTS/ICE	Contact Test Set/Internal Combustion Engine
cu in.	Cubic Inch
CW	Clockwise
DA	Department of the Army
DAC	Direct Access Card
DC	Direct Current
DDC	Detroit Diesel Corporation
DDEC II	Detroit Diesel Electronic Control II
DDEC III	Detroit Diesel Electronic Control III
DDEC IV	Detroit Diesel Electronic Control IV
DUVAC	Dual Voltage Control System
ECU	Electronic Control Unit
EIR	Equipment Improvement Recommendation

LIST OF ABBREVIATIONS - Continued

Table 2. - Continued

F	Fahrenheit
FCRD	Fault Code Retrieval Device
FR	Flatrack
ft	Foot
GAWR	Gross Axle Weight Rating
GCWR	Gross Combination Weight Rating
GFM	Government Furnished Material
GPFU	Gas Particulate Filter Unit
GPM	Gallons per Minute
GVW	Gross Vehicle Weight
Hcg	Horizontal Location of Center of Gravity
HD	Heavy Duty
hp	Horsepower
ICSC	International Convention For Safe Containers
IETM	Interactive Electronic Technical Manual
in.	Inch
IPF	ISO-Compatible Palletized Flatrack
ISO	International Standards Organization
JTA	Joint Table of Allowances
kg	Kilogram

LIST OF ABBREVIATIONS - Continued

Table 2. - Continued

km/h	Kilometer Per Hour
kPa	Kilopascal
kw	Kilowatt
L	Liter
lb-ft	Pound-Foot
lb-in	Pound-Inch
lb	Pound
LF	Lifting Frame
LHS	Load Handling System
m	Meter
MHC	Material Handling Crane
ml	Milliliters
ml/rev	Milliliter per Revolution
MLRS	Multiple Launch Rocket System
mm	Millimeter
mph	Miles Per Hour
N·m	Newton Meter
NBC	Nuclear, Biological, Chemical
NSN	National Stock Number
OTC	Oshkosh Truck Corporation
Pk	Package

LIST OF ABBREVIATIONS - Continued

Table 2. - Continued

PLS	Palletized Load System
PLST	Palletized Load System Trailer
PMCS	Preventive Maintenance Checks and Services
Pr	Pair
psi	Pound-Force Per Square Inch
pt	Pint
PTO	Power Takeoff
QA/QC	Quality Assurance/Quality Control
Qt	Quart
QTY	Quantity
RPSTL	Repair Parts and Special Tools List
RFI	Radio-Frequency Interference
RPC	Rocket Pod Containers
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers
SMR	Source, Maintenance, and Recoverability
SRW	Self-Recovery Winch
STD	Standard
STE/ICE	Simplified Test Equipment/Internal Combustion Engine

LIST OF ABBREVIATIONS - Continued

Table 2. - Continued

TAMMS	The Army Maintenance Management System
TDA	Tables of Distribution and Allowance
TM	Technical Manual
TMDE	Test, Measurement, and Diagnostic Equipment
U/I	Unit Of Issue
U/M	Unit Of Measure
Vcg	Vertical Location of Center of Gravity
vdc	Volts Direct Current
XHD	Extra Heavy-Duty

Table 3.

WARNING ICON	DESCRIPTION
	AIR PRESSURE - human hand blocking air gun shows the need to reduce air pressure before use, or debris may injure user and/or damage equipment.
	BIOLOGICAL - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.

LIST OF ABBREVIATIONS - Continued

Table 3. - Continued

	CHEMICAL - drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.
	ELECTRICAL - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.
	EXPLOSION - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.
	EXTREMELY COLD SURFACE - hand touching object with ice formed on both shows that surface is extremely cold and can damage human tissue.
	EYE PROTECTION - person with goggles shows that the material will injure the eyes.

LIST OF ABBREVIATIONS - Continued

Table 3. - Continued

	FIRE - flame shows that material may ignite and cause burns.
	FIRE EXTINGUISHER - shows that material may ignite and a fire extinguisher should be within easy reach.
	HEAVY OBJECT - human figure stooping over heavy object shows physical injury potential for improper lifting technique and/or need of aid of assistant(s) and/or need for lifting device (as required).
	HEAVY PARTS - foot with heavy object on top shows that heavy parts can crush and harm.
	HEAVY PARTS - heavy object on human figure shows that heavy parts present a danger to life or limb.

LIST OF ABBREVIATIONS - Continued

Table 3. - Continued

	HOT AREA - hand over object radiating heats shows that part is hot and can burn.
	MOVING PARTS - hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.
	PRESSURE/TENSION HAZARD - human body being impacted by rotating projectile shows that equipment is under pressure or tension, presenting a danger to life or limb if pressure or tension is not carefully released.
	PROJECTILE HAZARD - human body with object passing through it shows that a projectile hazard exists.
	RADIATION - three circular wedges shows that the material emits radioactive energy and can injure human tissue.

LIST OF ABBREVIATIONS - Continued

Table 3. - Continued

	ROLLOVER HAZARD - vehicle indicating direction of human figure shows that vehicle may roll over presenting a danger to life or limb if hazardous conditions are not avoided.
	RUN OVER HAZARD - vehicle running over human body shows hazard.
	SHARP OBJECT - pointed object in hand shows that a sharp object presents a danger to life or limb.
	SKIN IRRITATION - hand radiating shows that material can cause skin irritation.
	SLICK FLOOR - wavy line on floor with legs prone shows that slick floor presents a danger for falling.

LIST OF ABBREVIATIONS - Continued

Table 3. - Continued

	STEAM HAZARD - human engulfed in steam cloud shows steam hazard exists that could injure/burn human tissue.
	TIRE BLOWOUT - tire with hole shows that an over or under inflated tire may rupture, presenting a danger to life or limb.
	VAPOR - human figure in a cloud shows that material vapors present a danger to life or health.
	WARNING/CAUTION - triangle with exclamation point within shows that a WARNING or CAUTION is present that indicates a potential hazard, which may cause injury or death to personnel (warning) or damage to equipment (caution).
	WIRE CABLE/ROPE - human hand with frayed wire cable/rope running across shows injury to unprotected (bare) hands may result.

SAFETY, CARE, AND HANDLING

Beware of payload movement during normal loading/unloading operations. Ensure tiedown straps and cargo net are correctly installed. Flatrack should be loaded on vehicle or trailer using Load Handling System (LHS), Material Handling Crane (MHC), or other suitable lifting device. Never walk under flatrack while it is being lifted, loaded, or unloaded.

For M1 flatrack, ensure sideboard kit is also correctly installed. The M1 flatrack should be loaded on vehicle or trailer using Load Handling System (LHS). M1 flatracks should be stacked using a forklift. When lifting loaded M1 flatrack, the forklift pockets located nearest the ends of the M1 flatrack must be used.

METRIC SYSTEM

The equipment described herein contains metric components and requires metric, common, and special tools. Metric units and English units will be used throughout this publication.

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 miles

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeter = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeter = 10.76 Sq Feet
1 Sq Kilometer = 1,000,00 Sq Meters = 0.386 Sq Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius

METRIC SYSTEM - Continued

90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 °C + 32 = °F

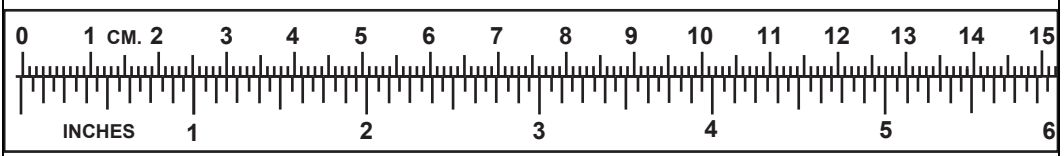
Table 4.

To Change	To	Multiply By
Inches	Millimeter	25.4
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907

METRIC SYSTEM - Continued

Table 4. - Continued

To Change	To	Multiply By
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Pounds per Square Inch	Bar	0.068948
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609



RULER NOT TO SCALE

Figure 1.

Millimeter	Inches	0.0394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471

METRIC SYSTEM - Continued

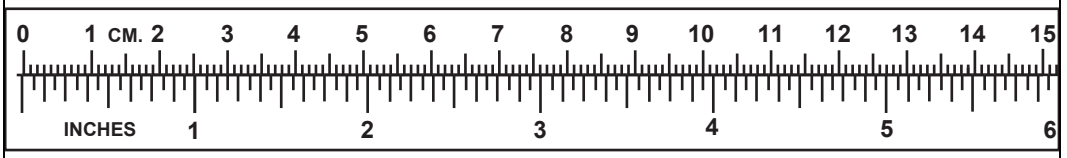
Table 4. - Continued

To Change	To	Multiply By
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Bar	Pounds per Square Inch	14.504
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

METRIC SYSTEM - Continued

Table 4. - Continued

To Change	To	Multiply By



RULER NOT
TO SCALE

Figure 2.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

The M1077 PLS flatrack is a welded-steel, flat-cargo body that can be loaded from the ground or a loading dock and loaded between vehicle and trailer using the vehicle-mounted LHS.

PLS M1077 FLATRACK CHARACTERISTICS

1. The flatrack is a welded-steel, flat-cargo body with a wall used as a lifting point. Flatrack is usually loaded and unloaded by the Load Handling System (LHS).
2. The flatrack has four ISO corner castings on the bottom that allow it to be secured and transported on flatbed railcar, M871 semitrailer and stacked one on top of another. Two flatracks can be transported on the M872 semitrailer. These configurations require only existing railcar and trailer-mounted ISO corner castings.
3. In addition, the flatrack has four ISO corner castings on top which allow a standard 8 ft x 8 ft x 20 ft container to be secured and transported on the flatrack.
4. The flatrack is provided with a side board kit and tiedown straps to allow transport of break-bulk materials.

PLS M1077 FLATRACK CAPABILITIES

1. The flatrack can be loaded from the ground or a loading dock and loaded between vehicle and trailer using the vehicle-mounted LHS. The M1077 Flatrack will accommodate uniformly distributed payloads of 33,000 lbs (14,969 kg). The M1077A1 Flatrack will accommodate uniformly distributed payloads of 32,300 lbs (14,651 kg). To meet the uniformly distributed payload requirements, the rear corner fittings should be 1,100 lbs (499 kg) to 1,200 lbs (544 kg) heavier than the front corner fittings.
2. The flatrack is capable of being transported without restriction on C-141 aircraft.
3. The flatrack is capable of being sling-lifted by a CH-47D helicopter with a reduced payload. The maximum permissible reduced payload for a M1077 is 20,000 lb (9,072 kg), and for a M1077A1 is 19,300 lbs (8,754 kg) at 2,000 ft (610 m), 70°F (21°C), for 30 nautical miles.
4. A fully loaded flatrack, excluding ISO container, is capable of being stowed within the cell of a container vessel.
5. The flatrack can be moved by a forklift with forks that are a minimum of 68 in. (1727 mm) in length.

PLS M1077 FLATRACK FEATURES

1. A welded frame forming a single, integral unit.

2. Capable of accepting two enclosed stowage boxes.
3. Removable rollers at the rear of the flatrack.
4. Capable of accepting a side board kit to carry break-bulk materials.
5. Tiedown rings to secure payloads.
6. Forklift pockets to allow movement of the flatrack in loaded/unloaded situation.
7. ISO corner casting in front and rear.
8. Maximum weight for the M1077 is 3,200 lbs (1,452 kg). Maximum weight for the M1077A1 is 3,900 lbs (1,769 kg). Both without side board kit.

Location and Description of Major Components

Major components and accessories found on PLS M1077 flatrack are illustrated and described below.

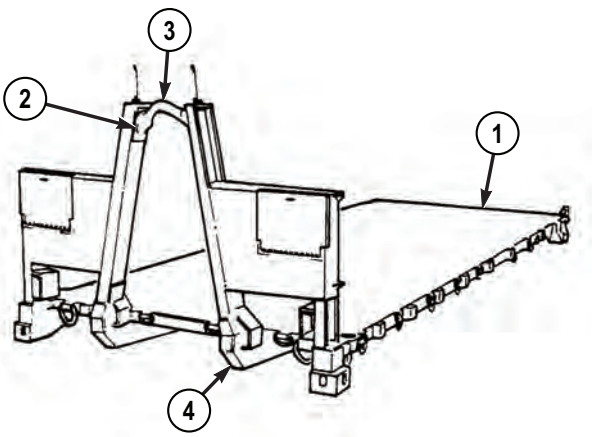


Figure 1.

Item Number	Description	Use
1	FLATRACK	Provides a welded frame and wall forming a cargo carrier used with the vehicle.
2	WALL	Provides a lifting point for the flatrack.
3	HOOK BAR	Provides a point to couple with the LHS hook arm to lift and pull the flatrack onto the vehicle.

Location and Description of Major Components - Continued

Item Number	Description	Use
4	FLATRACK RAILS	Provides locking plates that mate with plates on the vehicle and trailer to secure the flatrack for road operations.

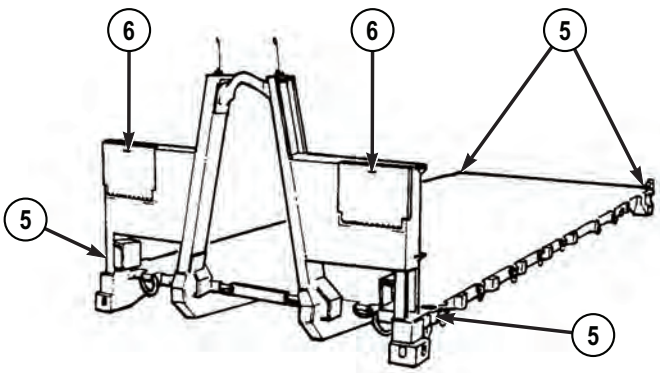


Figure 2.

Item Number	Description	Use
5	CORNER ISO LOCKS/ FITTINGS	Provides an area that has the same dimensions as a 20 ft (6.10 m) ISO container. This allows the flatrack to be secured on any equipment capable of locking down a 20 ft (6.10 m) ISO container, including ships and trailers.
6	STOWAGE BOXES	Provides a place to allow storage of tiedown straps and other items. The stowage box covers are hinged and have provisions for locking.

Location and Description of Major Components - Continued

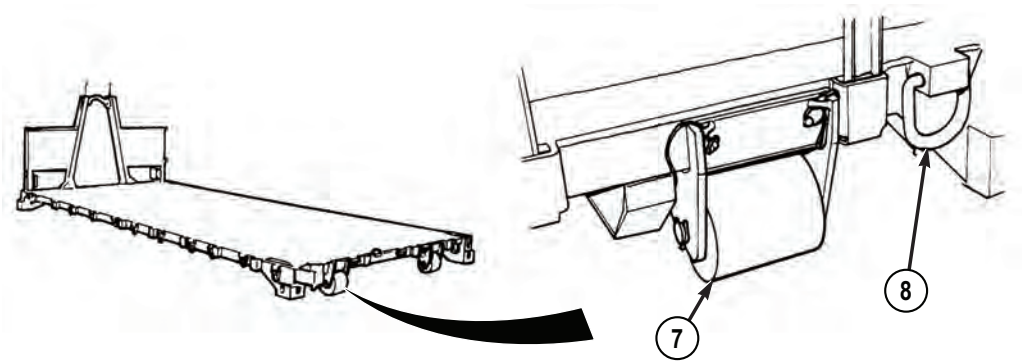


Figure 3.

Item Number	Description	Use
7	REMOVABLE ROLLERS	Provides a base used for loading/unloading flatrack onto the trailer or docks.
8	LIFTING RINGS AND STRAPS	Provides a way to secure payloads or to secure flatrack for modes of shipping when flatrack is not on vehicle or trailer.

Equipment Data

Refer to the following tables for specific PLS M1077 flatrack equipment data.

Table 1.

Item	Specification
Width	95.99 in. (2,438.2 mm)
Height	62.48 in. (1,587.0 mm)
Length	248.5 in. (6,312 mm)
Weight	

Equipment Data - Continued

Table 1. - Continued

Item	Specification
M1077 without side board kit	3,200 lb (1,452 kg)
M1077 with side board kit	3, 625 lb (1,644 kg)
M1077A1 without side board kit	3,900 lb (1,769 kg)
M1077A1 with side board kit	4,325 lb (1,962 kg)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

The flatrack is a welded-steel, wooden floored, flat cargo body with folding walls for stacking that can be loaded from the ground, a loading dock, or vehicle to trailer using the vehicle-mounted LHS.

M1 FLATRACK CHARACTERISTICS

1. The flatrack is a welded-steel, wooden floored, flat cargo body with folding walls for stacking. The flatrack usually is loaded and unloaded by the Load Handling System (LHS).
2. The flatrack has four bottom ISO corner castings that allow one flatrack to be secured and transported on a flatbed railcar or M871 semitrailer. Two flatracks can be transported on the M872 semitrailer. These configurations require only existing railcar and trailer-mounted ISO corner castings. The bottom ISO corner castings allow three unloaded and folded flatracks secured with chains and load binders may be transported on a flatbed rail car.
3. In addition, the flatrack has four upper ISO corner castings that allow loaded flatracks to be stacked up to nine high in the cargo cell of a container ship.
4. The flatrack is provided with a sideboard kit, cargo tarp, and tiedown straps to allow transport of cargo.

M1 FLATRACK CAPABILITIES

1. The flatrack can be loaded from the ground, a loading dock, or vehicle to trailer using the vehicle-mounted LHS. The flatrack will accommodate nominal loads of 29,500 lbs (13,381 kg) including sideboards and tarp when loaded on PLS vehicle or trailer. The flatrack will accommodate loads up to 31,400 lbs (14,243 kg) including sideboards and tarp when not loaded on PLS vehicle or trailer.
2. The flatrack is capable of being transported on C-130, C-141, C-5, and C-17 aircraft.
3. The flatrack is capable of being sling-lifted by a CH47-D helicopter with a reduced payload. The maximum permissible payload of the flatrack, payload and slinging assemblies will not exceed the maximum permissible 22,900 lbs (10,387 kg) at 2,000 ft (610 m), 70°F (21°C), for 30 nautical miles.
4. Up to nine fully loaded flatracks can be stacked and locked together in the cell of a container ship.
5. Three empty flatracks, with the end walls folded down, can be stacked together. A stack of three M1 flatracks may be loaded on the PLS vehicle using the LHS and a M1077 flatrack.
6. Two empty flatracks, with the top flatrack end walls folded down and the rear wall of the bottom flatrack folded down, can be stacked and locked together using

suitable blocking and bracing material. In this configuration, the flatracks can be loaded on the PLS using the LHS and the hook bar on the lower flatrack.

NOTE

Two sets of forklift pockets are provided underneath the flatrack. The set nearest the ends of the flatrack must be used when lifting loaded flatracks. The set closest to the center of the flatrack is for lifting unloaded flatracks only. Use of the wrong forklift pockets could cause damage to equipment.

1. The flatrack can be moved by a forklift with forks that are a minimum of 70.0 in. (1,778 mm) in length.

M1 FLATRACK FEATURES

1. A welded frame forming a single integral unit with wood flooring.
2. Two removable, enclosed stowage boxes.
3. Folding front and rear walls.
4. Capable of accepting a sideboard kit to carry cargo.
5. Tiedown rings, 25,000 lb (11,340 kg) and 10,000 lb (4,436 kg) capacity, to secure payloads.
6. Forklift pockets to allow movement of the flatrack in loaded/unloaded situations.
7. ISO corner castings at the tope and bottom of the front and rear walls.
8. Removable rollers at the rear of the flatrack.
9. Sideboard kit and cargo tarp.
10. Twist locks at the front and rear of the flatrack for stacking.
11. Pin assemblies at front and rear of the flatrack to allow lowering of front and rear walls.

Location and Description of Major Components

Major components and accessories found on the M1 flatrack are illustrated and described below.

Location and Description of Major Components - Continued

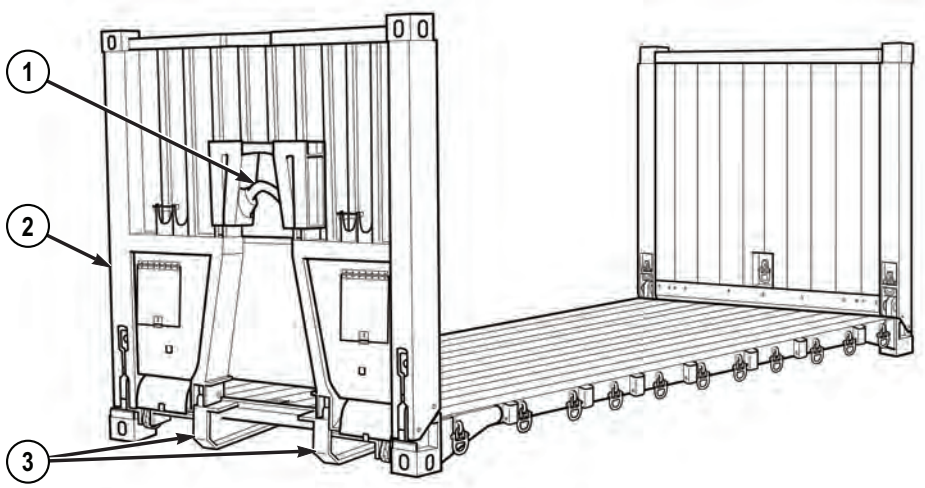


Figure 1.

Item Number	Description	Use
1	HOOK BAR	Provides a lifting point for the flatrack. The hook bar (1) couples with the LHS hook arm to lift and pull the flatrack onto the vehicle. The entire front wall can be lowered onto the flatrack deck to prepare the flatrack for unloaded stacking.
2	FRONT WALL	Provides structure for the flatrack.
3	RAILS	Provide locking plates that mate with locks on the vehicle and trailer to secure the flatrack for road operations.

Location and Description of Major Components - Continued

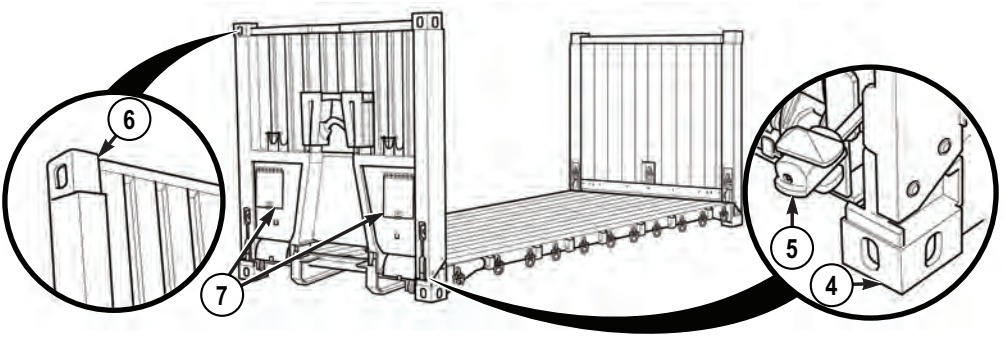


Figure 2.

Item Number	Description	Use
4	LOWER ISO CORNER CASTINGS	Allows the flatrack to be interchangeable between the vehicle, trailer, M871 semitrailer, M872 semitrailer, container chassis, containerized ships, and ISO transportation system.
5	TWIST LOCKS	Coupled with the lower ISO corner castings (4) allow three empty folded flatracks to be stacked and locked together.
6	UPPER ISO CORNER CASTINGS	Allow up to nine loaded flatracks to be stacked in the cargo cell of a container ship.
7	STORAGE BOXES	Allow storage of Basic Issue Items (BII) and other items. The stowage boxes are hinged and have provisions for locking.

Location and Description of Major Components - Continued

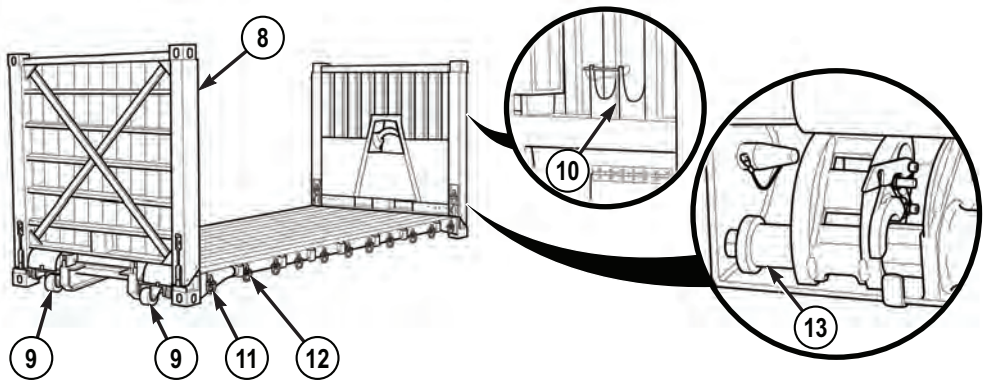


Figure 3.

Item Number	Description	Use
8	REAR WALL	Provides structure and folds forward to prepare unloaded flatrack for stacking.
9	REMOVABLE ROLLERS	Used for loading/unloading flatrack onto the trailer or docks. The rollers can be detached from the deck and stowed on the upper front wall stowage points.
10	FRONT WALL STOWAGE POINTS	Provides space to stow rollers.
11	TIEDOWN RINGS	Six 25,000 lb (11,340 kg) capacity tiedown rings are provided to secure payloads or to secure flatrack for modes of shipping when flatrack is not on vehicle or trailer.
12	TIEDOWN RINGS	Twenty-two 10,000 lb (4,536 kg) capacity tiedown rings and twenty-two straps are provided to secure payloads

Location and Description of Major Components - Continued

Item Number	Description	Use
		or to secure flatrack for modes of shipping when flatrack is not on vehicle or trailer.
13	PIN ASSEMBLIES	Pin assemblies at the front and rear of the flatrack allow front and rear walls to be lowered.

Equipment Data

Refer to the following table for specific M1 flatrack equipment data.

Table 1.

Item	Specification
Width (Between ISO corner castings):	95.98 in. (2,437.9 mm)
Height:	
Deck to upper ISO corner castings	75.5 in. (1,918 mm)
Ground to upper ISO corner castings	82.0 in. (2,083 mm)
Length:	238.5 in. (6,058 mm)
Weight:	
Without cargo tarp and sideboard kit	7,300 lbs (3,311 kg)
With cargo tarp, stowage box and sideboard kit	8,100 lbs (3,674 kg)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
THEORY OF OPERATION

SYSTEMS INTRODUCTION

This section provides a basic explanation of major systems on the PLS Flatrack.

FLATRACK (FR)

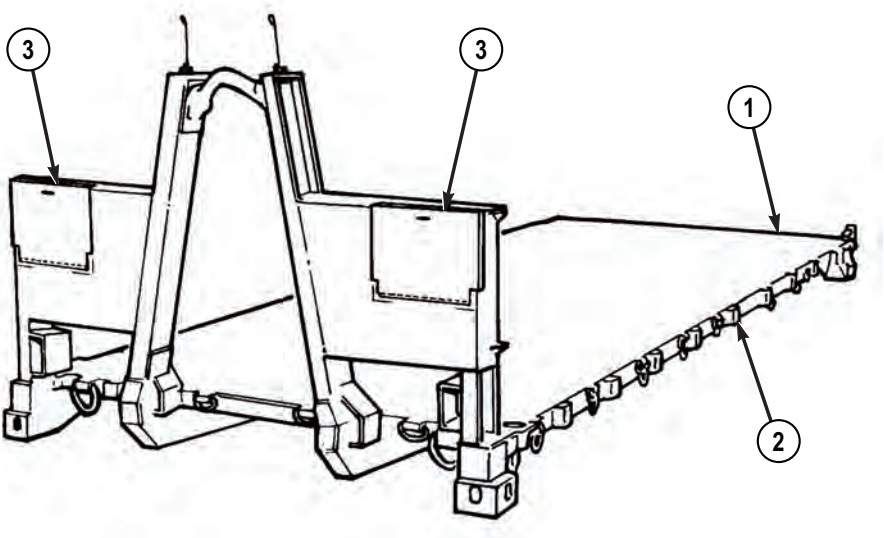


Figure 1.

The FR (1) M1077 accommodates a 33,000 lb (15 metric ton) payload and the M1077A1 accommodates a 32,300 lb (14.7 metric ton) payload during all modes of transportation and during all specified load/unload operations. During Load Handing System (LHS) load/unload operations the FR can accommodate a full payload. The M1077 has an empty weight of 3,200 lbs (1,452 kg) and M1077A1 has an empty weight of 3,900 lbs (1,769 kg) both without side boards. The FR can accommodate palletized, break-bulk, and 20 ft (6.1 m) ISO container payloads. Stake pockets (2) are used to contain and hold cargo side rails. Stowage boxes (3) are used for storing straps, cargo nets, etc.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
THEORY OF OPERATION

SYSTEMS INTRODUCTION

This section provides a basic explanation of major systems on the PLS ISO Compatible Flatrack.

FLATRACK (FR)

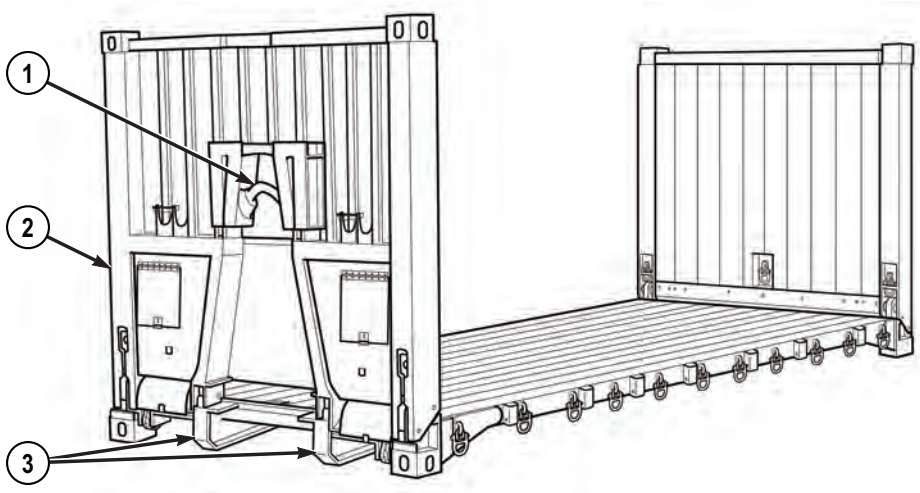


Figure 1.

The IPF flatrack is equipped with spring-loaded counterbalance mechanisms that allow the walls to be lowered by a mechanic and assistant. Pin assemblies, located at the front and rear flatrack walls, provide a means to lower the walls. All components are permanently attached to the flatrack with the exception of the sideboards, rear rollers, BII, and cargo tarp that the operator can remove or install.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

OPERATOR MAINTENANCE
ASSEMBLY AND PREPARATION FOR USE

INITIAL SETUP:

Not Applicable

UNPACKING

Refer to Unpacking and Packing , for unpacking instructions.

END OF TASK

ASSEMBLY AND INSTALLATION

1. Refer to Loose Parts Installation for assembly and installation instructions, including removal of rollers from stowage points.
2. Refer to Side Board Kit (WP 0008) if side boards and straps must be installed.

END OF TASK

LOCK AND UNLOCK FRONT ISO LOCKS

CAUTION

- Ensure all ISO container locks are unlocked before trying to load container on flatrack. Damage to both container and ISO locks could occur if locks are not correct.
- Ensure side boards have been removed from flatrack before trying to load ISO container or damage to equipment may result.

NOTE

Steps (1) and (2) must be performed before loading ISO container.

1. Lift up on handle (1) and rotate to the left to lift lock body (2).

LOCK AND UNLOCK FRONT ISO LOCKS - Continued

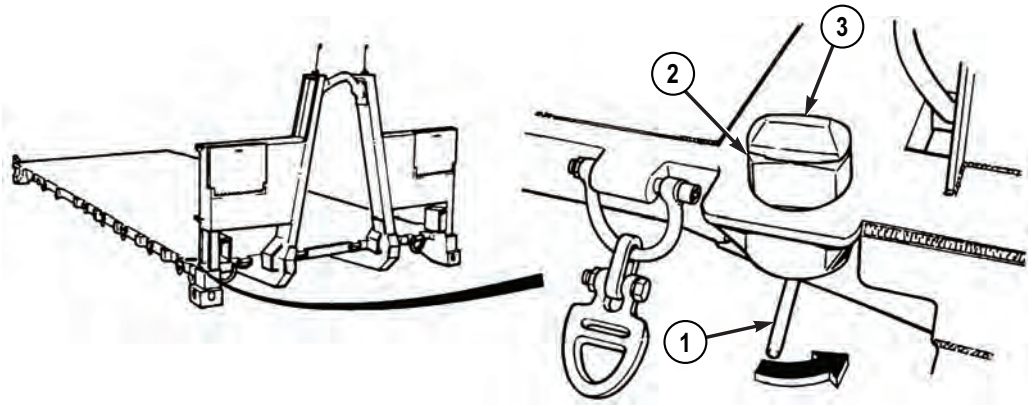


Figure 1.

2. Twist handle (1) further to allow top (3) of lock to be in position to engage ISO container.
3. After installing ISO container, twist handle (1) to lock ISO container and flatrack together.

END OF TASK

LOCK AND UNLOCK REAR ISO LOCKS

CAUTION

- Ensure all ISO container locks are unlocked before trying to load container on flatrack. Damage to both container and ISO locks could occur if locks are not unlocked.
- Ensure side boards have been removed from flatrack before trying to load ISO container. Damage to sideboard or ISO container may result.

1. Pull pin (1) from extension (2).

LOCK AND UNLOCK REAR ISO LOCKS - Continued

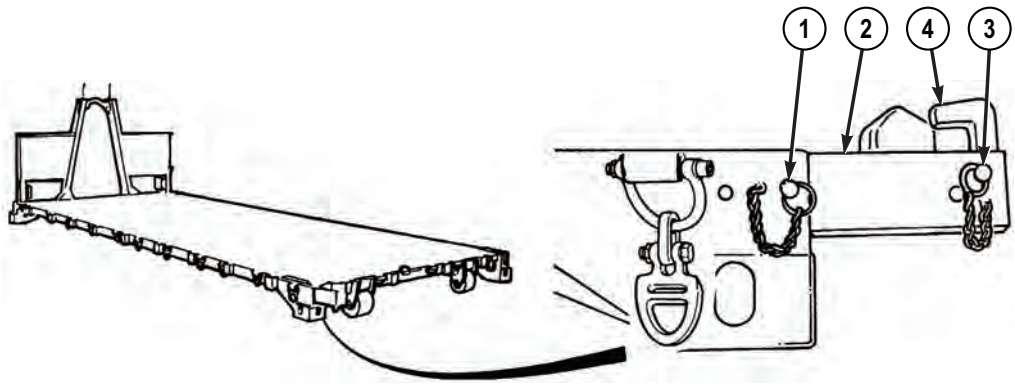


Figure 2.

2. Rotate extension (2) back and install pin (1) in hole.
3. After loading ISO container, remove pin (3) from lock (4) and rotate lock upward.
4. Hold lock (4) in place by reinstalling in pin (3) in lock.

END OF TASK

LOADING AND UNLOADING FLATRACK

Refer to detailed procedures on loading and unloading the flatrack using the LHS .

END OF TASK

END OF WORK PACKAGE

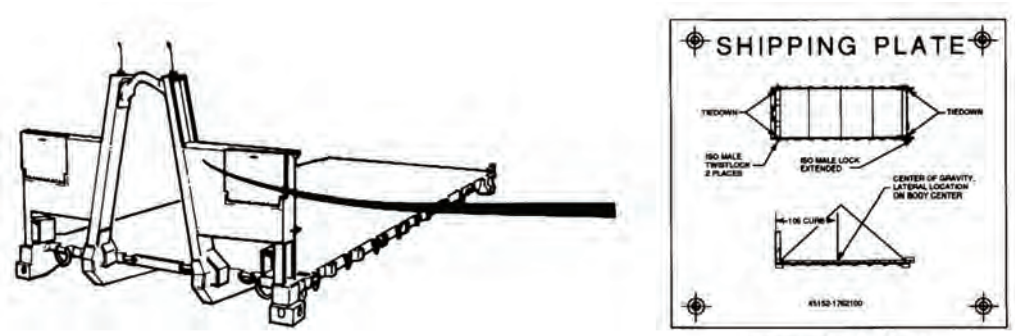
OPERATOR MAINTENANCE
DECALS AND INSTRUCTION PLATES

INITIAL SETUP:

Not Applicable

SHIPPING LABEL

Shipping label is riveted to the left front of the flatrack wall.



SHIPPING LABEL

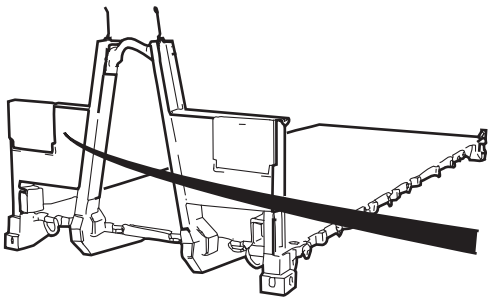
Figure 1.

END OF TASK

DATA PLATE

The flatrack data plate is riveted to the right front of the flatrack wall.

DATA PLATE - Continued



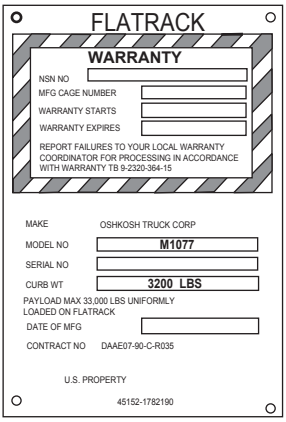


Figure 2.

END OF TASK

STENCILS

1. The words LIFT and TIEDOWN are stenciled at four places on the flatrack, two on the front and two on the rear.
2. The words U.S. ARMY are stenciled at two places on the flatrack, left front and right rear.
3. The registration number is stenciled at two places on the flatrack, left front and right rear.
4. A five-point star is stenciled in four places on the side of the flatrack. Two stars are centered front and rear and two stars are at left front and right front.
5. The word CARC is stenciled under the data plate.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
SIDEBOARD KIT

INITIAL SETUP:

Not Applicable

INSTALLATION

CAUTION

Sideboards and straps secure the load to flatrack. Install sideboards and straps to flatrack before trying to move load or damage to equipment or the load may result.

1. Line up stakes (1) of sideboard sections (2) with pockets (3) on flatrack. Push sideboard sections down until seated in pockets.

INSTALLATION - Continued

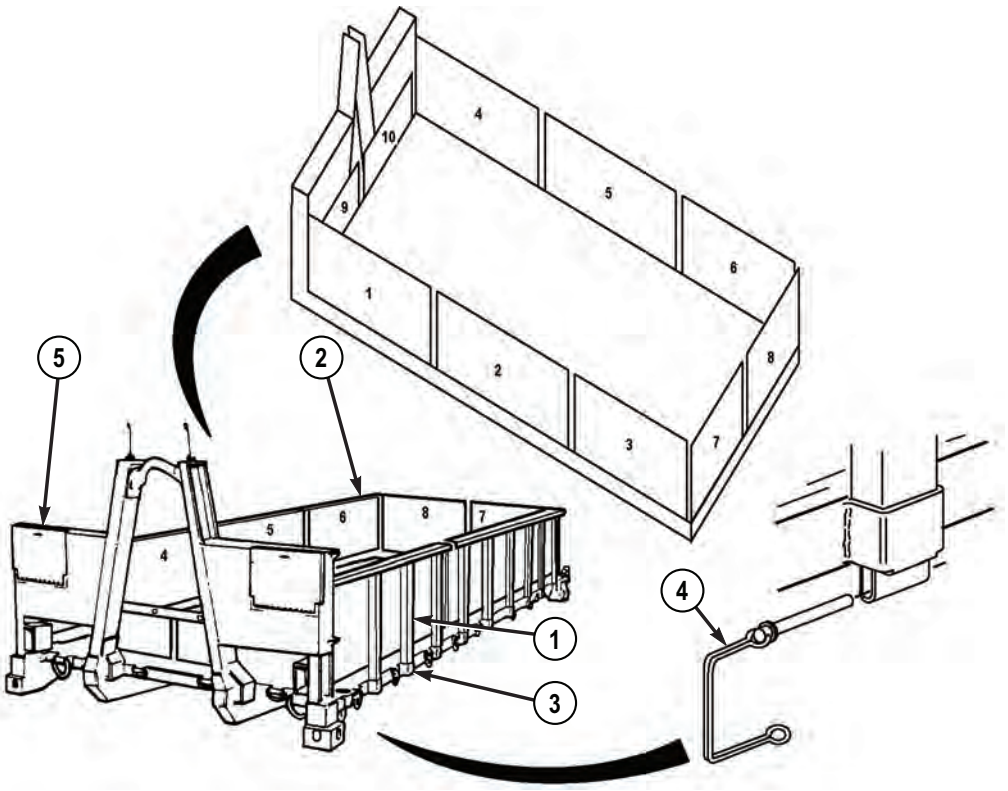


Figure 1.

2. Anchor sideboard sections (2) to sideboard pockets (3) with retainer clips (4).
3. Remove tiedown straps from stowage box (5).
4. Install tiedown straps to cargo.

END OF TASK

REMOVAL

1. Remove tiedown straps from cargo and stow in stowage box (5).

REMOVAL - Continued

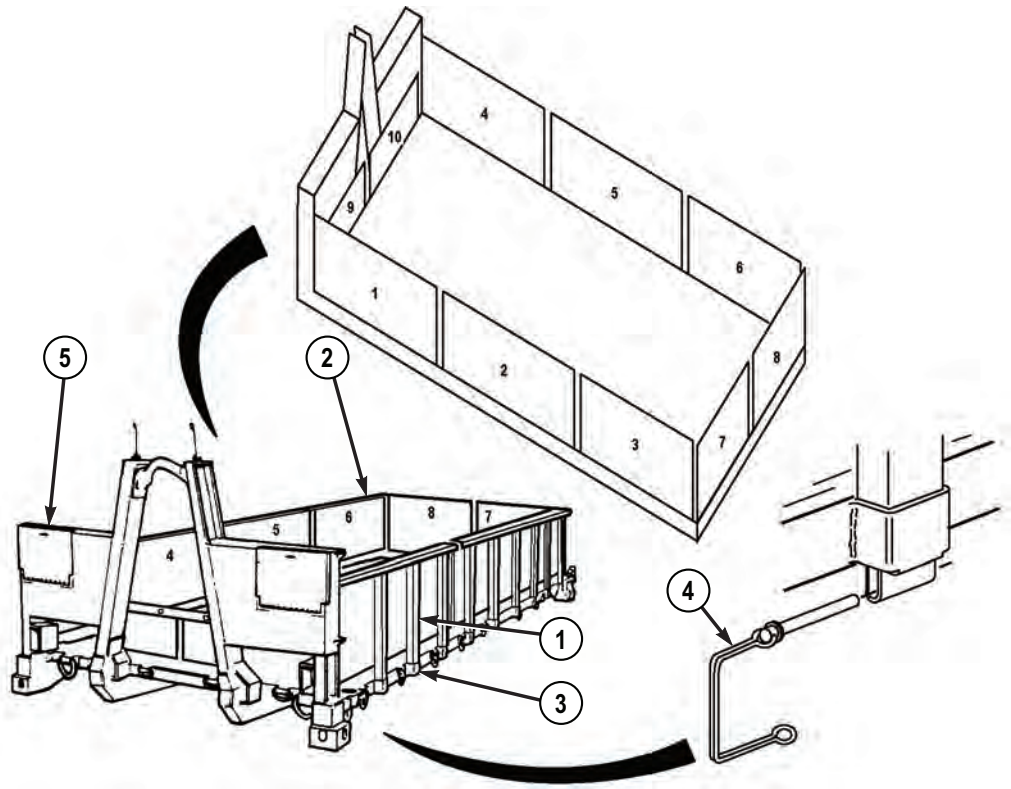


Figure 2.

2. Remove retainer clips (4) from sideboard pockets (3) and stakes (1).
3. Lift sideboard sections (2) out of sideboard pockets (3).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
FLATRACK STACKING AND LOADING ON PLS

INITIAL SETUP:

Not Applicable

STACKING/LOADING (NORMAL)

WARNING

Flatracks must be empty when stacked. Failure to comply may result in injury or death to personnel.

NOTE

- Two flatracks loaded on PLS vehicle is maximum if legal length requirement must be met. If no legal length requirement must be met, maximum of four flatracks may be loaded on PLS vehicle.
- Steps (1) through (4) are done only on flatrack that will be located below flatrack to be loaded.
- Flatracks may be stacked either on the ground or on the vehicle.
- When stacking flatracks directly to vehicle, there must be at least one empty flatrack already on the vehicle.
- Two people are required for stacking/loading flatracks.

1. Push up and turn handle (1) on two front locks (2) to UNLOCK position as shown.

STACKING/LOADING (NORMAL) - Continued

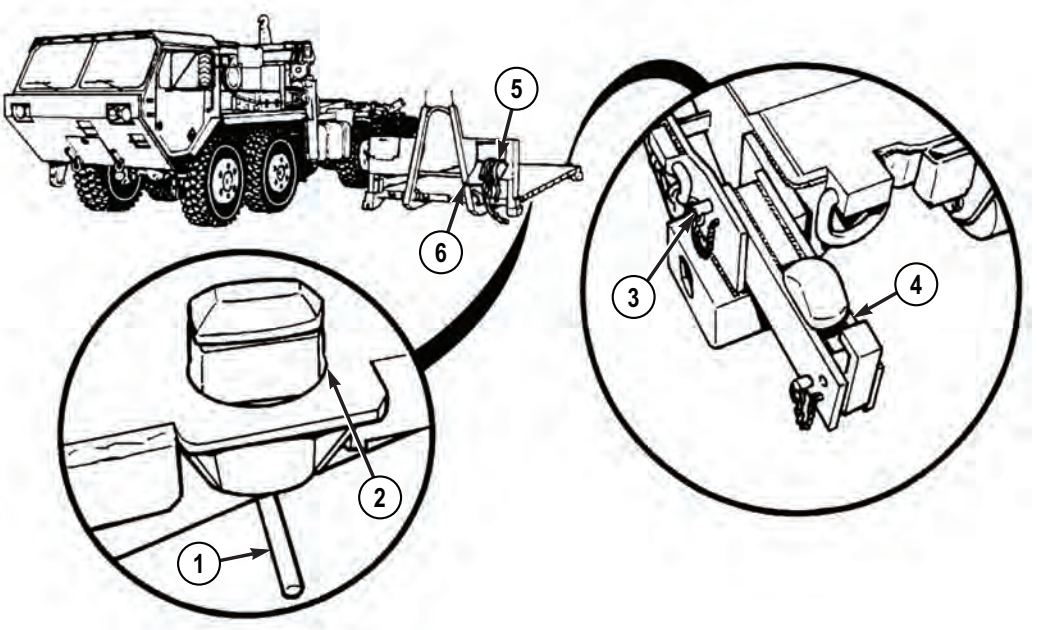


Figure 1.

2. Remove pin (3) from rear extension (4) and rotate extension outward.
3. Install pin (3) to secure extension (4) in place.
4. Remove three lifting straps (5) from flatrack stowage box (6).

WARNING

Ensure lifting straps are wrapped a minimum of three times around ratchet of lifting strap. Failure to comply may result in lifting strap being released and flatrack may fall causing injury or death to personnel.

CAUTION

The Material Handling Crane (MHC) can lift only one flatrack at a time. Lifting more than one flatrack can cause damage to equipment.

STACKING/LOADING (NORMAL) - Continued

5. Attach one lifting strap (5) from left to right, to two front tiedown rings (7) on flatrack (8).

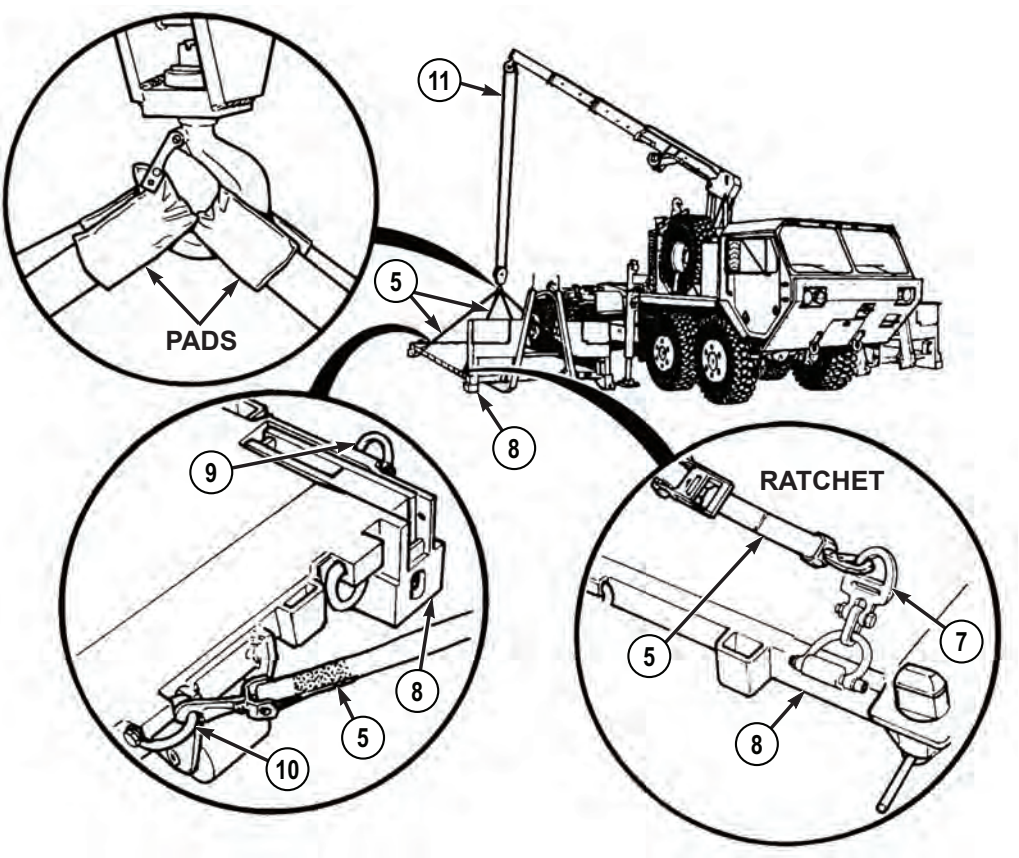


Figure 2.

6. Attach one lifting strap (5) from left to right, to two rear tiedown rings (9) on flatrack (8).

7. Attach lifting strap (5) to tiedown ring (10) at rear of flatrack (8).

STACKING/LOADING (NORMAL) - Continued

WARNING

Ensure pads on lifting straps are positioned in lifting clevis of MHC. Failure to comply may result in breakage of lifting straps causing injury or death to personnel.

8. Attach two lifting straps (5) to MHC (11).

WARNING

M1077 flatrack weighs 3,200 lbs (1,452 kg). M1077A1 flatrack weighs 3,900 lbs (1,769 kg). Do not attempt to lift or move flatrack without the aid of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

CAUTION

Ensure boom of MHC is positioned directly over center of flatrack prior to lifting flatrack off ground. Failure to comply may result in uneven lifting of flatrack and damage to equipment may result.

NOTE

If flatrack is not being raised level, Perform Steps (9) through (12). If flatrack is level, go on to Step (13).

9. With the aid of an assistant, raise flatrack (8) until flatrack clears ground and ensure flatrack is level.

10. Lower flatrack (8) to ground.

STACKING/LOADING (NORMAL) - Continued

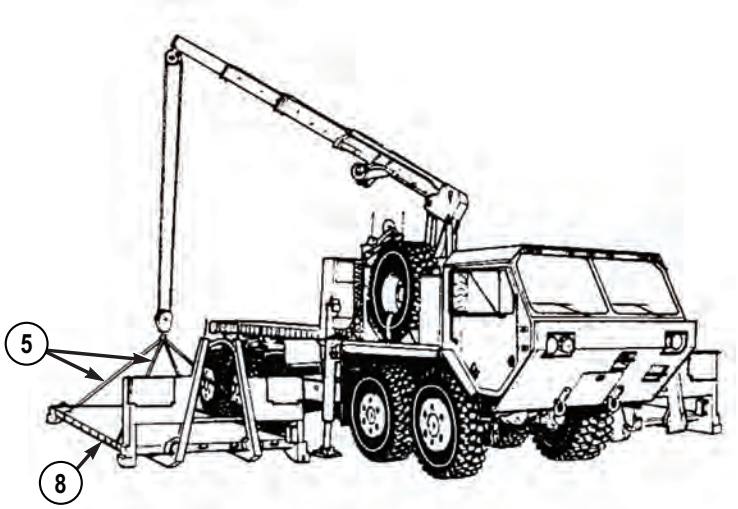


Figure 3.

11. Shorten or lengthen two lifting straps (5) as required.
12. Repeat Steps (8) through (11) until flatrack (8) is level when raised.
13. With the aid of an assistant, use lift strap (5) on rear of flatrack (8) to guide flatrack in position, while operating MHC (11) and position flatrack (8) on flatrack (12).

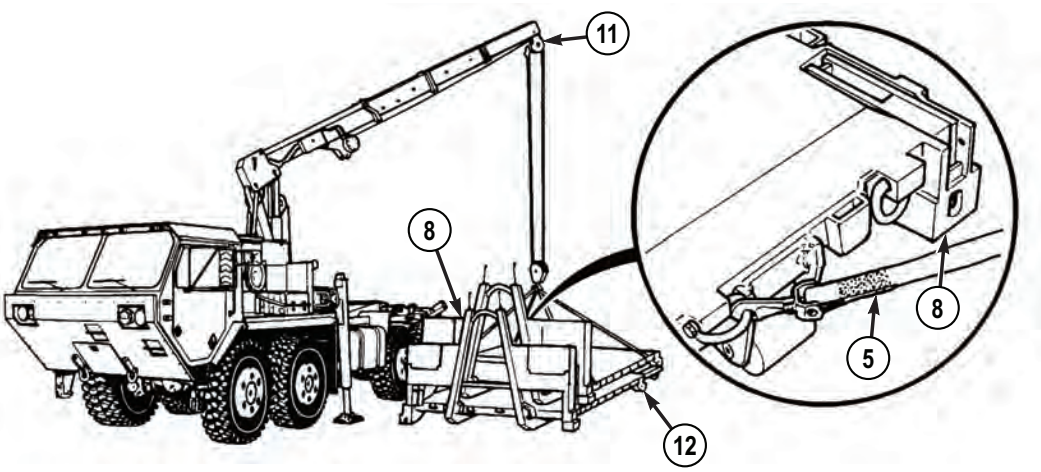


Figure 4.

STACKING/LOADING (NORMAL) - Continued

CAUTION

Ensure flatrack locks are free of snow, dirt, and debris prior to lowering flatrack or proper locking will not occur.

14. Position flatrack (8) securely on flatrack (12).

NOTE

Flatrack is in locked position when top of lock is positioned across flatrack mount as shown.

15. Turn handle (1) on two locks (2) until flatrack (8) is locked in.

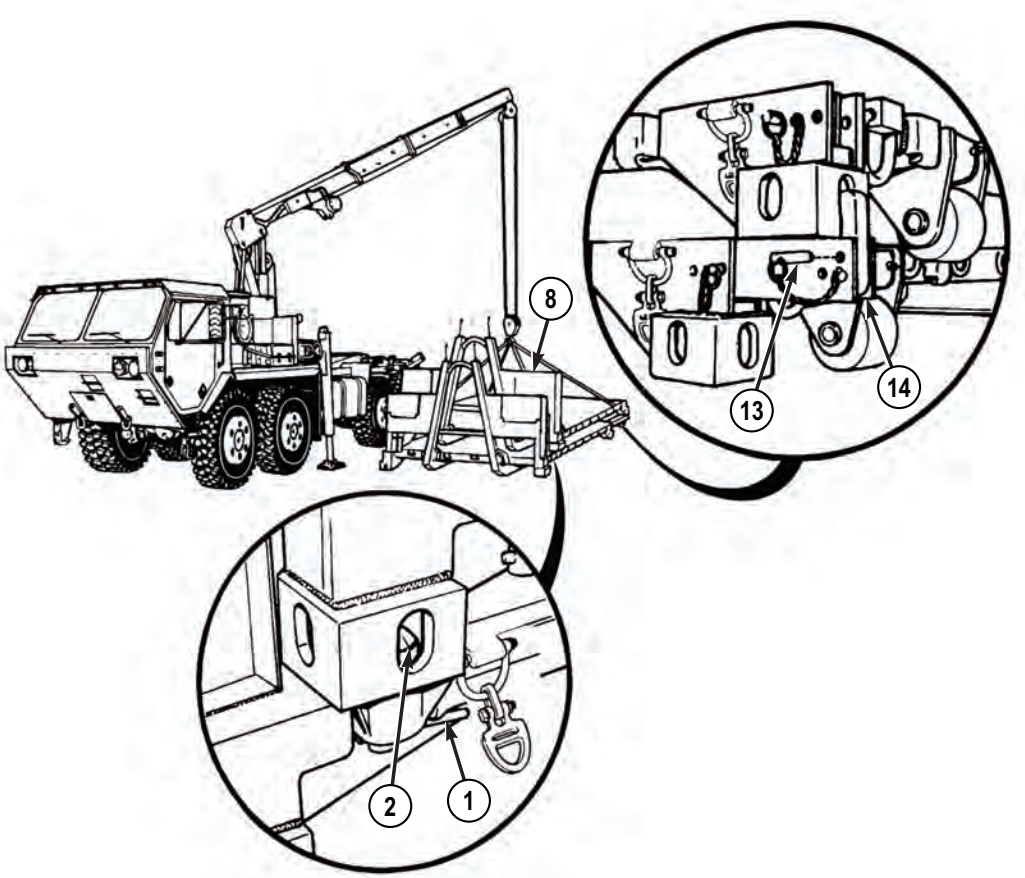


Figure 5.

STACKING/LOADING (NORMAL) - Continued

16. Remove pin (13) from lock (14) and rotate to LOCKED position.
17. Install pin (13) to secure lock (14) in place.
18. Remove three lifting straps (5) from five tiedown rings (7), (9), and (10) on flatrack (8).

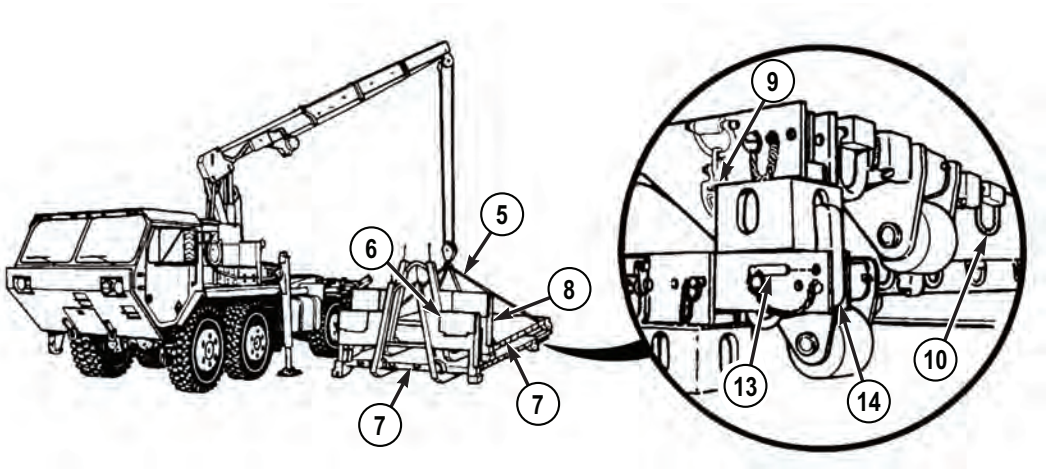


Figure 6.

19. Repeat Steps (1) through (18) for additional flatracks being stacked.
20. Stow three lifting straps (5) in flatrack stowage box (6).

CAUTION

Ensure LHS hook is hooked only in flatrack located on bottom of stack. Failure to comply will result in improper loading of flatrack stack and damage will occur to equipment.

21. Position vehicle in front of flatracks (8) and (12) and use Load Handling System (LHS) to load flatracks on vehicle. Refer to TM 9-2320-364-10. (WP 0034)

STACKING/LOADING (NORMAL) - Continued

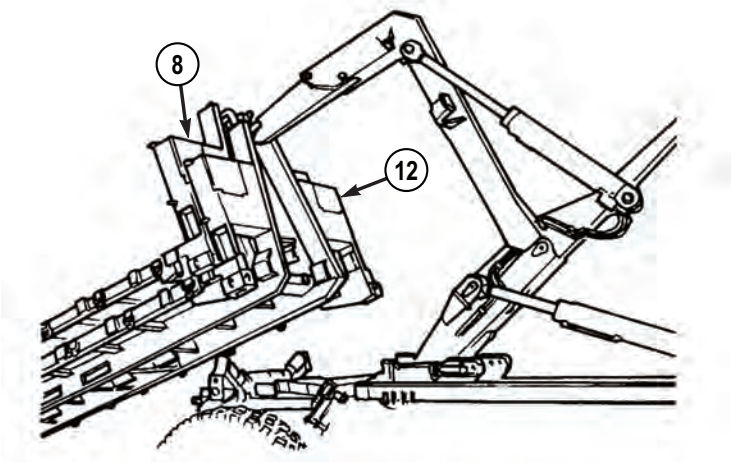


Figure 7.

END OF TASK

UNSTACKING/UNLOADING (NORMAL)

1. Using LHS, remove flatracks (1) and (2) from vehicle. Refer to TM 9-2320-364-10. (WP 0034)

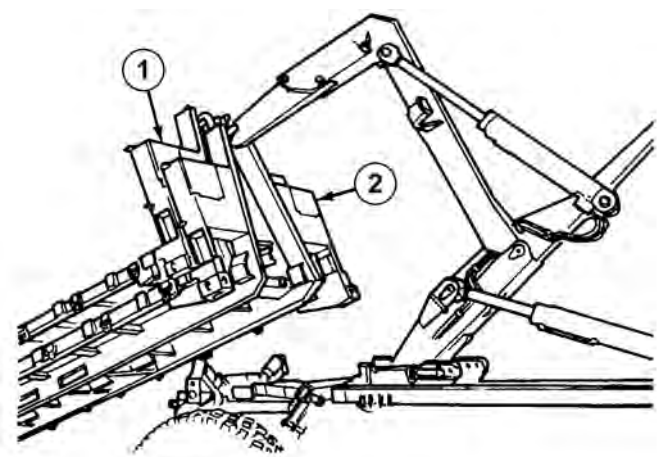


Figure 8.

UNSTACKING/UNLOADING (NORMAL) - Continued

WARNING

Ensure lifting straps are wrapped a minimum of three times around ratchet of lifting strap. Failure to comply may result in lifting strap being released and flatrack may fall causing injury or death to personnel.

2. Remove three lifting straps (3) from flatrack stowage box (4).

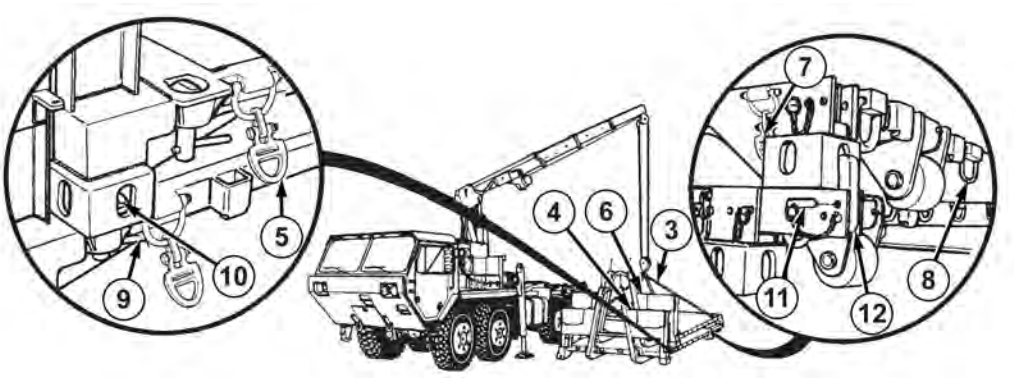


Figure 9.

3. Attach one lifting strap (3) from left to right, to two front tiedown rings (5) on flatrack (6).
4. Attach one lifting strap (3) from left to right, to two rear tiedown rings (7) on flatrack (6).
5. Attach lifting strap (3) to tiedown ring (8) at rear of flatrack (6).
6. Turn handle (9) on two front locks (10) to UNLOCK position.
7. Remove pin (11) from lock (12).
8. Rotate lock (12) downward.

UNSTACKING/UNLOADING (NORMAL) - Continued

WARNING

M1077 flatrack weighs 3,200 lbs (1,452 kg). M1077A1 flatrack weighs 3,900 lbs (1,769 kg). Do not attempt to lift or move flatrack without the aid of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

9. Position MHC (13) directly over center of flatracks (1) and (2).

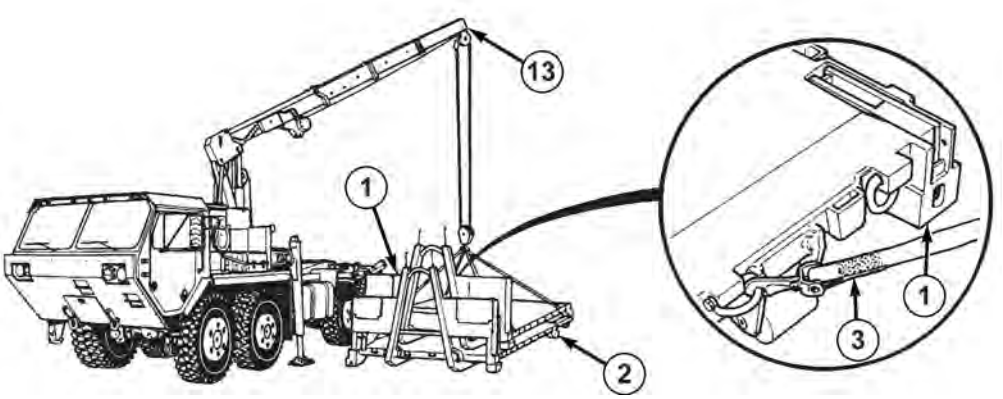


Figure 10.

10. Attach two lifting straps (3) to MHC (13).

WARNING

Ensure pads on lifting straps are positioned in lifting clevis of MHC. Failure to comply may result in breakage of lifting straps causing injury or death to personnel.

UNSTACKING/UNLOADING (NORMAL) - Continued

CAUTION

The MHC can lift only one flatrack at a time. Lifting more than one flatrack can cause damage to equipment.

11. With the aid of an assistant, hold lifting strap (3) on rear of flatrack (1) to guide flatrack in position while operating MHC (13) and position flatrack on ground.
12. Remove two lifting straps (3) from MHC (13).
13. Remove three lifting straps (3) from five tiedown rings (5), (7), and (8) on flatrack (1).
14. Rotate lock (12) inward and install pin (11) to secure lock.

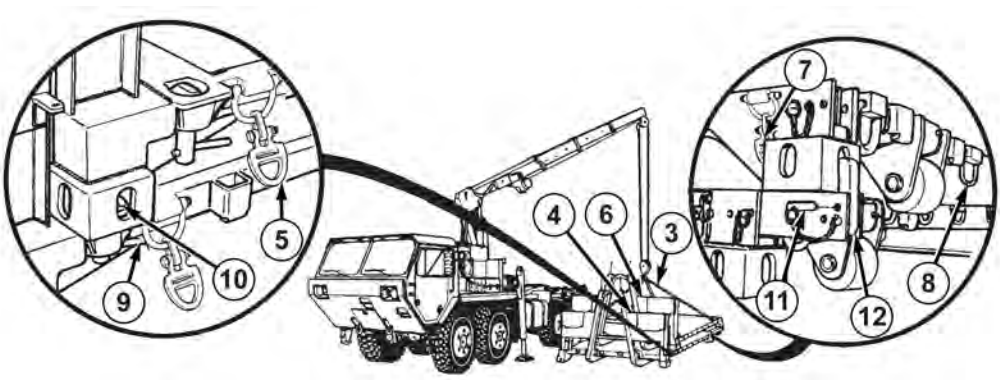


Figure 11.

15. Remove pin (14) from extension (15) and rotate extension inward to **STOWED** position.

UNSTACKING/UNLOADING (NORMAL) - Continued

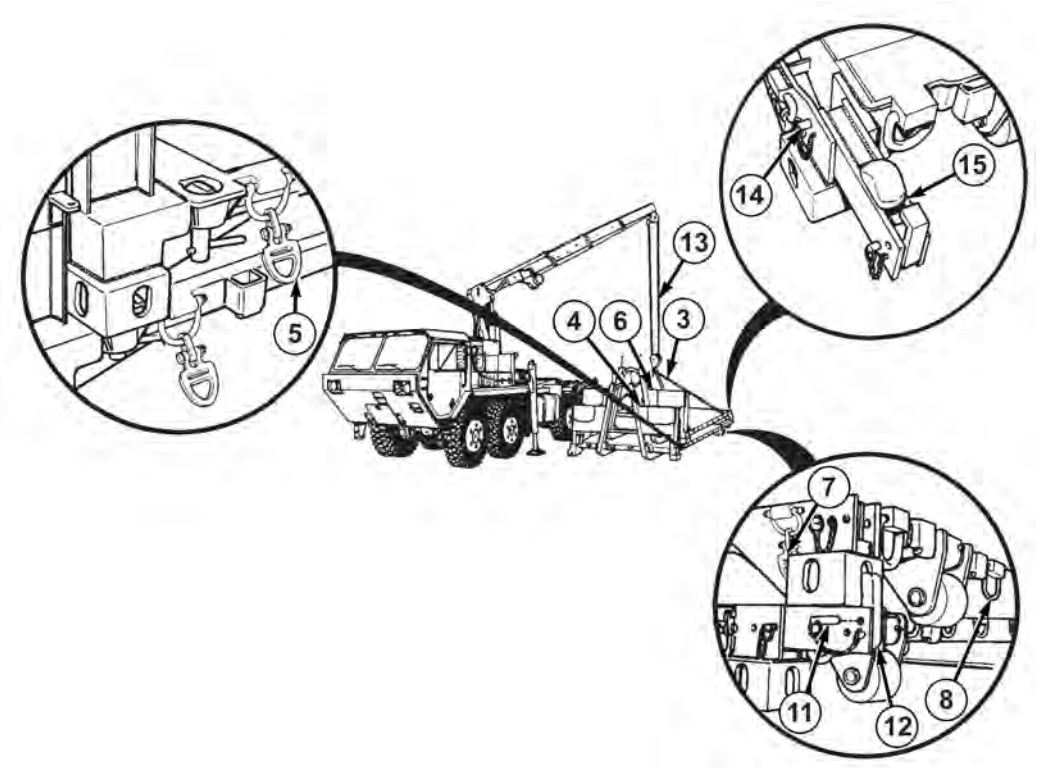


Figure 12.

16. Install pin (14) in extension (15).
17. Repeat Steps (1) through (16) for additional flatracks being removed from stack.
18. Stow three lifting straps (3) in flatrack stowage box (4).

END OF TASK

ALTERNATE FLATRACK STACKING PROCEDURE

WARNING

Flatracks must be empty when stacked. Failure to comply may result in injury or death to personnel.

CAUTION

Rollers must be installed on flatrack prior to performing this procedure. Failure to comply could result in damage to equipment.

NOTE

- This procedure can be performed with one vehicle.
- Tiedown rings must be off top of bed prior to performing this procedure.

1. Position PLS vehicle No. 1 (1) in front of flatrack No. 1 (2).

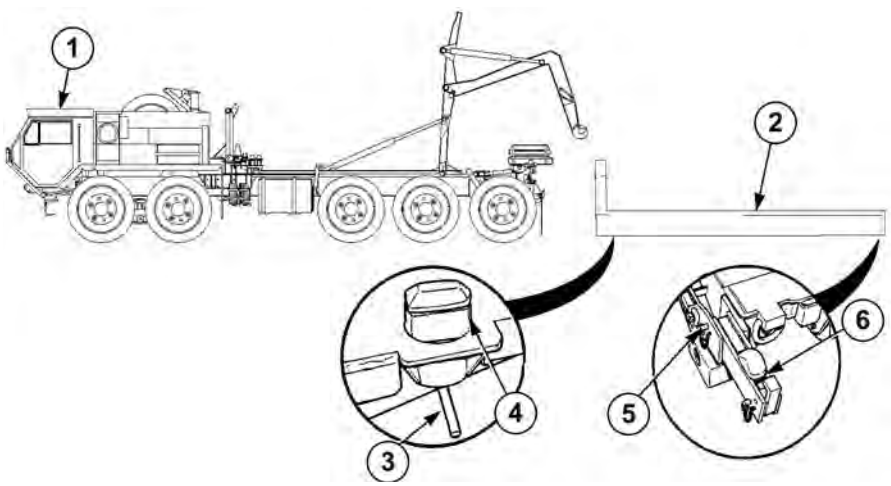


Figure 13.

2. Push up and turn handle (3) on two front locks (4) to **UNLOCK** position as shown.
3. Remove pin (5) from rear extension (6) and rotate rear extension outward.
4. Install pin (5) to secure rear extension (6) in place.

ALTERNATE FLATRACK STACKING PROCEDURE - Continued

5. PLS vehicle No. 2 (7) loads flatrack No. 2 (8). Refer to TM 9-2320-364-10. (WP 0034).

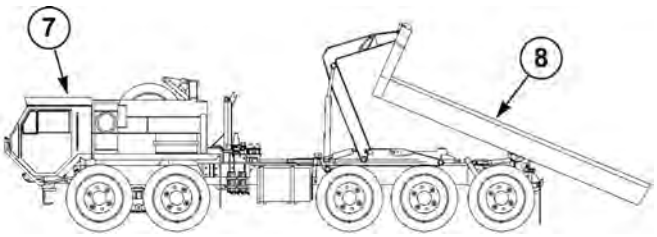


Figure 14.

NOTE

Flatrack is in **LOCKED** position when top of lock is positioned across flatrack mount as shown.

6. PLS vehicle No. 2 (7) unloads flatrack No. 2 (8) onto flatrack No. 1 (2). Refer to TM 9-2320-364-10. (WP 0034)

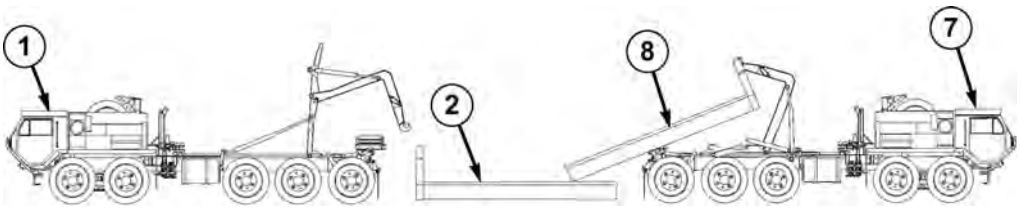


Figure 15.

7. Turn handle (3) on two locks (4) until flatrack No. 2 (8) is locked in.

ALTERNATE FLATRACK STACKING PROCEDURE - Continued

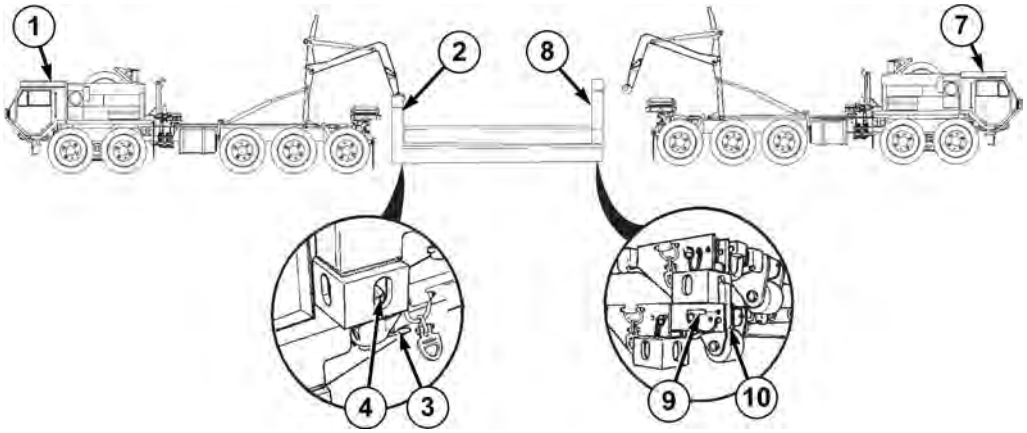


Figure 16.

8. Remove pin (9) from lock (10) and rotate lock to **LOCKED** position.
9. Install pin (9) to secure lock (10) in place.
10. Secure two flat racks together with strap as shown below.

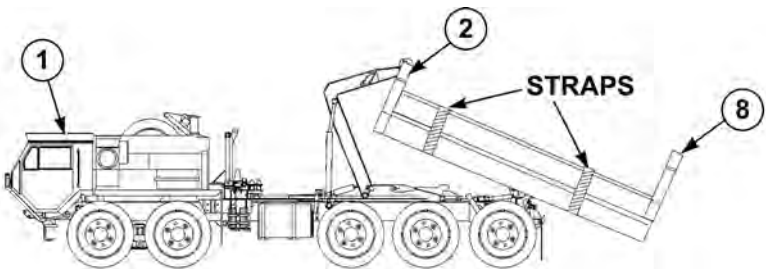


Figure 17.

11. PLS vehicle No. 2 (7) moves out to stack two more flatracks.
12. PLS vehicle No. 1 (1) loads two flatracks No. 1 and No. 2 (2) and (8) on PLS vehicle. Refer to TM 9-2320-364-10. (WP 0034)

ALTERNATE FLATRACK STACKING PROCEDURE - Continued

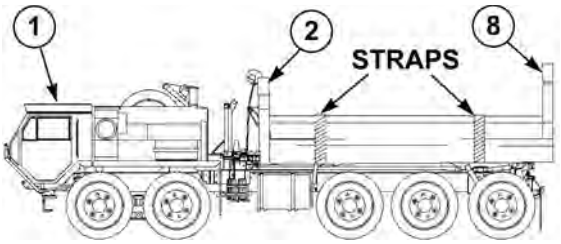


Figure 18.

13. PLS vehicle No. 1 (1) unloads two flatracks No. 1 and No. 2 (2) and (8) onto PLS trailer. Refer to TM 9-2320-364-10 (WP 0034), and reloads two more flatracks or continues the mission.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
FLATRACK STACKING AND LOADING ON PLS TRAILER

INITIAL SETUP:

Not Applicable

LOADING/STACKING

WARNING

Flatracks must be empty when stacked. Failure to comply may result in injury or death to personnel.

WARNING

Ensure flatracks are loaded or unloaded on trailer one at a time. MHC on vehicle is not capable of handling more than one flatrack at a time. Failure to comply may result in injury or death to personnel.

NOTE

- If legal length requirement must be met, two flatracks loaded on PLS trailer is maximum. If no legal length requirement must be met, maximum of five flatracks may be loaded on PLS trailer.

LOADING/STACKING - Continued

- If vehicle towing trailer has two flatracks loaded on PLS vehicle and legal length requirement needs to be met, two flatracks loaded on PLS trailer is maximum. If no legal length requirement needs to be met, PLS vehicle towing trailer can carry two flatracks loaded on vehicle, maximum of five flatracks may be loaded on PLS trailer. If vehicle towing trailer is not a PLS vehicle, maximum of five flatracks may be loaded on trailer at any time.
- Ensure trailer air system is fully charged.
- Ensure vehicle is positioned between trailer and flatrack prior to Step (1).

1. Remove three lifting straps (1) from flatrack stowage box (2).

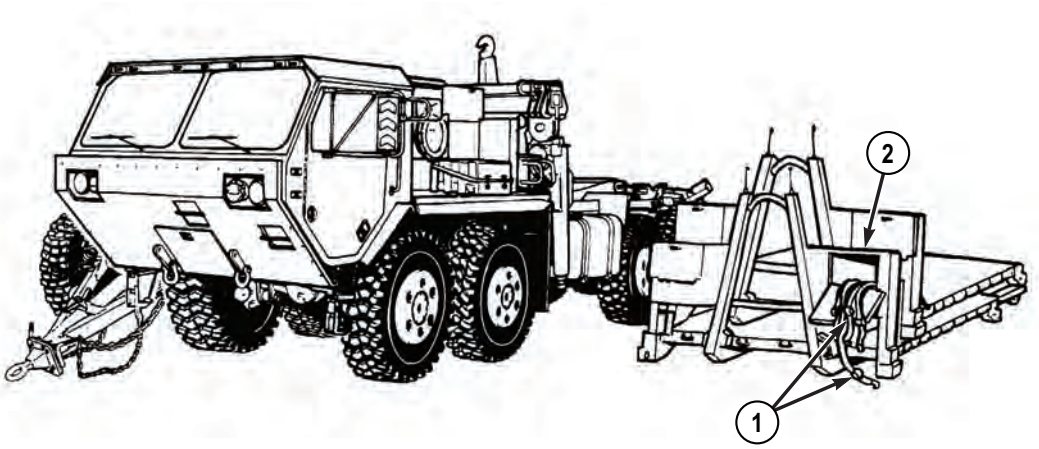


Figure 1.

WARNING

Ensure lifting straps are wrapped a minimum of three times around ratchet of lifting strap. Failure to comply may result in lifting strap being released and flatrack may fall causing injury or death to personnel.

2. Attach one lifting strap (1), from left to right, to two front tiedown rings (3) on flatrack (4).

LOADING/STACKING - Continued

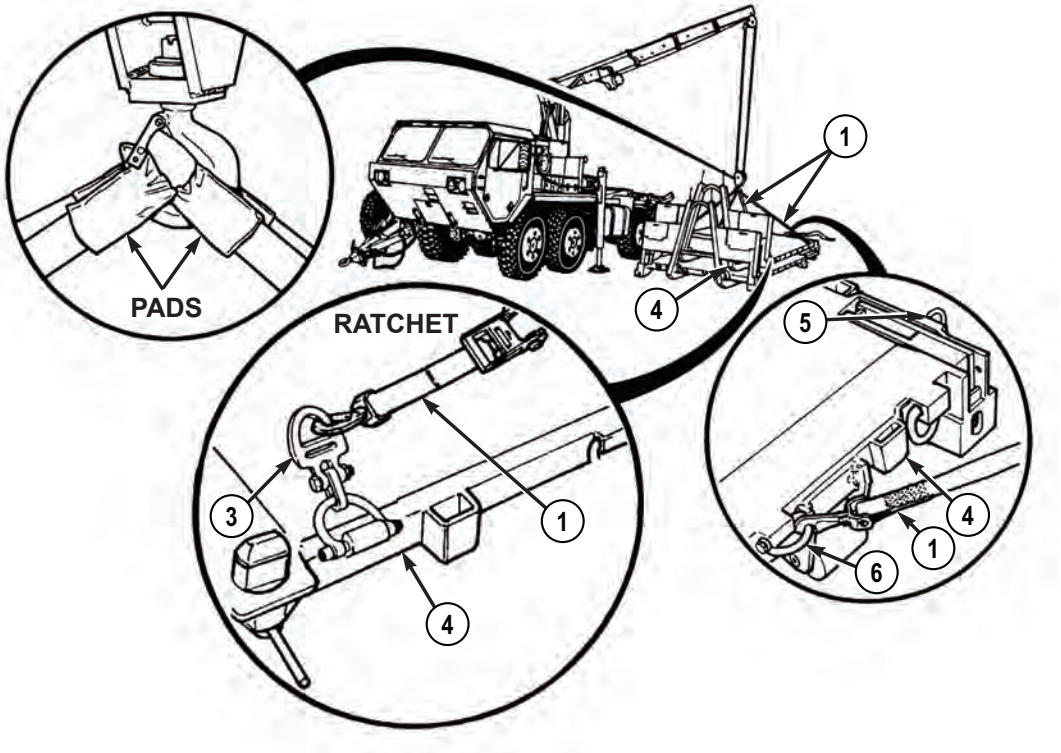


Figure 2.

3. Attach one lifting strap (1), from left to right, to two rear tiedown rings (5) on flatrack (4).
4. Attach lifting strap (1) to tiedown ring (6) at rear of flatrack (4).

LOADING/STACKING - Continued

WARNING

Ensure pads on lifting straps are positioned in lifting clevis of MHC. Failure to comply may result in breakage of lifting straps causing injury or death to personnel.

5. Attach two lifting straps (1) to Material Handling Crane (MHC) (7).

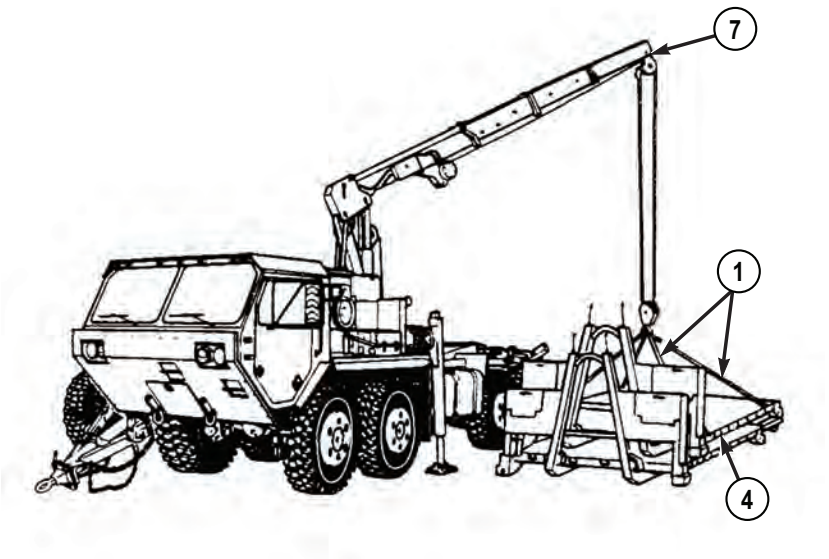


Figure 3.

WARNING

M1077 flatrack weighs 3,200 lbs (1,452 kg). M1077A1 flatrack weighs 3,900 lbs (1,769 kg). Do not attempt to lift or move flatrack without the aid

LOADING/STACKING - Continued

of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

CAUTION

Ensure boom of MHC is positioned directly over center of flatrack prior to lifting flatrack off ground. Failure to comply may result in uneven lifting of flatrack and damage to equipment may result.

NOTE

If flatrack is not being raised level, Perform Steps (6) through (8). If flatrack is level, go to step (10).

6. Raise flatrack (4) until flatrack clears ground and ensure flatrack is level.
7. Lower flatrack (4) to ground.
8. Shorten or lengthen two lifting straps (1) as required.
9. Repeat Steps (6) through (8) until flatrack is level when raised.

CAUTION

Use extreme care when positioning flatrack from ground to trailer. If flatrack is not moved slowly, flatrack may contact winch on MHC and damage may occur to equipment.

10. With the aid of an assistant, hold lifting strap (1) on rear of flatrack (4) to guide flatrack in position while operating MHC (7) and position flatrack over trailer (8).
11. Ensure two load locks (9) on trailer (8) are retracted.

LOADING/STACKING - Continued

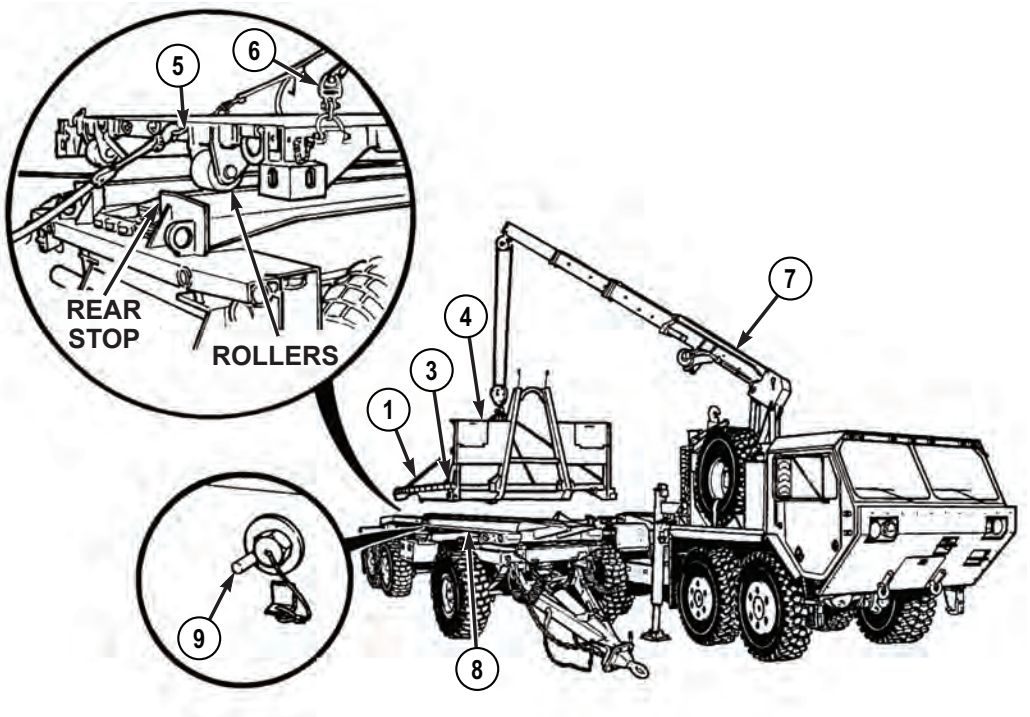


Figure 4.

CAUTION

Ensure flatrack rollers are positioned tight against rear stop on trailer. Failure to comply will result in improper loading of flatracks and damage to equipment may result.

12. Lower flatrack (4) on trailer (8).
13. Engage load locks (9) on trailer (8) to secure flatrack (4).
14. Remove two lifting straps (1) from MHC (7).
15. Remove three lifting straps (1) from tiedown rings (3), (5), and (6) on flatrack (4).

NOTE

- If additional flatracks will be loaded on trailer, go to Step (16). If not, go to Step (35).
- Steps (16) through (18) are performed on flatrack located on trailer only.

LOADING/STACKING - Continued

16. Push up and turn handle (10) on two locks (11) to UNLOCK position.

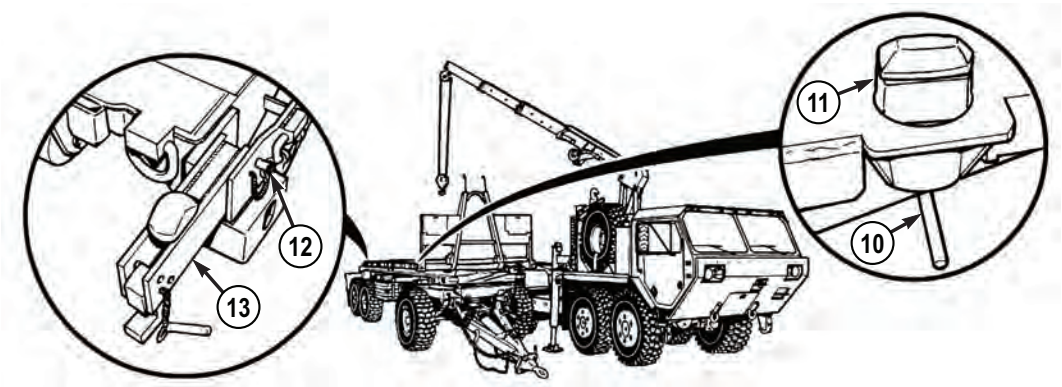


Figure 5.

17. Remove pin (12) from extension (13) and rotate extension outward.
18. Install pin (12) to secure extension (13) in place.

WARNING

Ensure lifting straps are wrapped a minimum of three times around ratchet of lifting strap. Failure to comply may result in lifting strap being released and flatrack may fall causing injury or death to personnel.

19. Attach one lifting strap (1), from left to right, to two front tiedown rings (3) on flatrack (14).

LOADING/STACKING - Continued

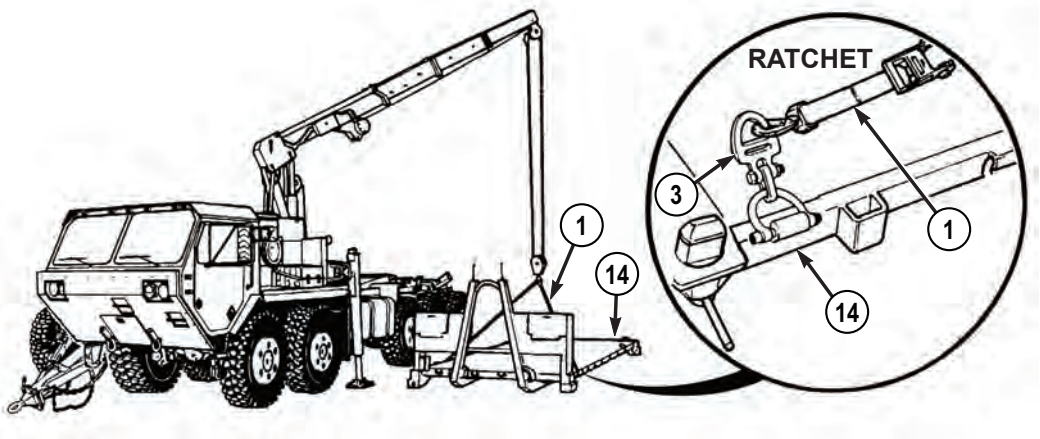


Figure 6.

20. Attach one lifting strap (1), from left to right, to two rear tiedown rings (5) on flatrack (14).

LOADING/STACKING - Continued

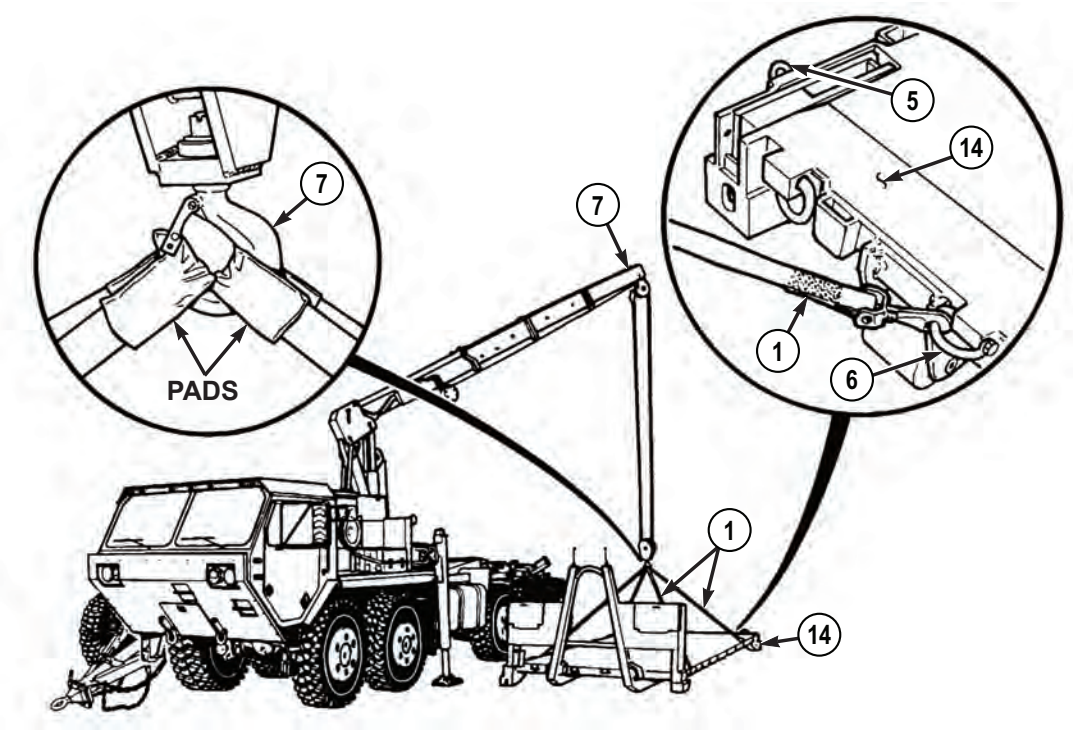


Figure 7.

21. Attach lifting strap (1) to tiedown ring (6) at rear of flatrack (14).

WARNING

Ensure pads on lifting straps are positioned in lifting clevis of MHC. Failure to comply may result in breakage of lifting straps causing injury or death to personnel.

22. Attach two lifting straps (1) to MHC (7).

LOADING/STACKING - Continued

CAUTION

Ensure boom of MHC is positioned directly over center of flatrack prior to lifting flatrack off ground. Failure to comply may result in uneven lifting of flatrack and damage to equipment may result.

NOTE

If flatrack is not raised level, Perform Steps (23) through (26). If flatrack is level, go to Step (27).

23. Raise flatrack (14) until flatrack clears ground and ensure flatrack is level.
24. Lower flatrack (14) to ground.
25. Shorten or lengthen two lifting straps (1) as required.
26. Repeat Steps (23) through (25) until flatrack is level when raised.

CAUTION

Use extreme care when positioning flatrack from ground to trailer. If flatrack is not moved slowly, flatrack may contact winch on MHC and damage may occur to equipment.

27. With the aid of an assistant, hold lifting strap (1) on rear of flatrack (14) to guide flatrack in position while operating MHC (7) and position flatrack (14) over flatrack (4) on trailer (8).
28. Lower and position flatrack (14) on flatrack (4).

LOADING/STACKING - Continued

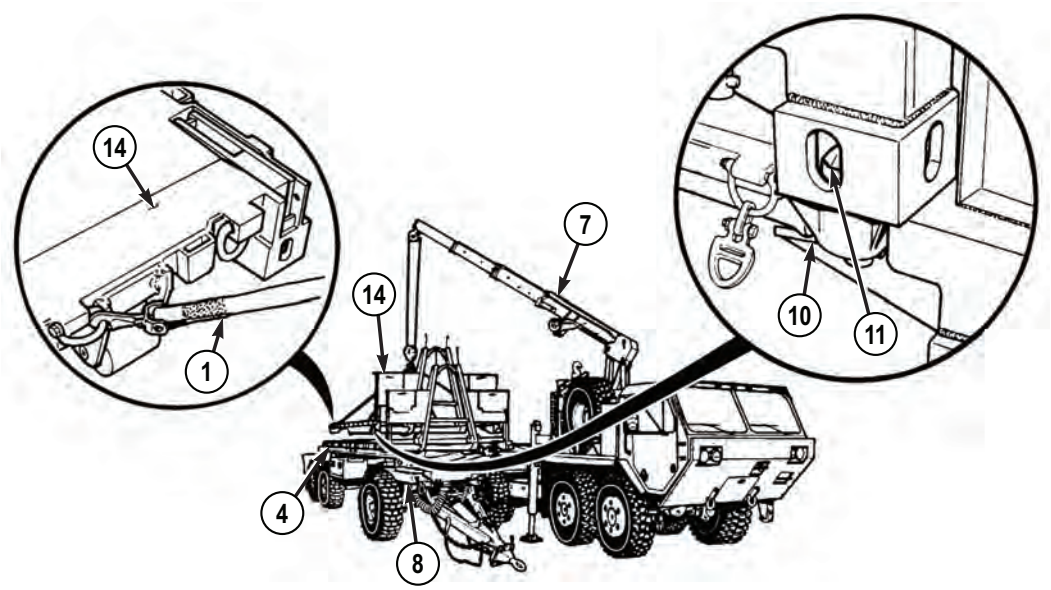


Figure 8.

CAUTION

Ensure flatrack locks are free of snow, dirt and debris prior to lowering flatrack or proper locking will not occur.

NOTE

Flatrack is in locked position when top of lock is positioned across flatrack mount as shown.

29. Turn handle (10) on two locks (11) on flatrack (4) until flatrack (14) is locked.
30. Remove pin (15) from lock (16) and rotate lock to LOCKED position.

LOADING/STACKING - Continued

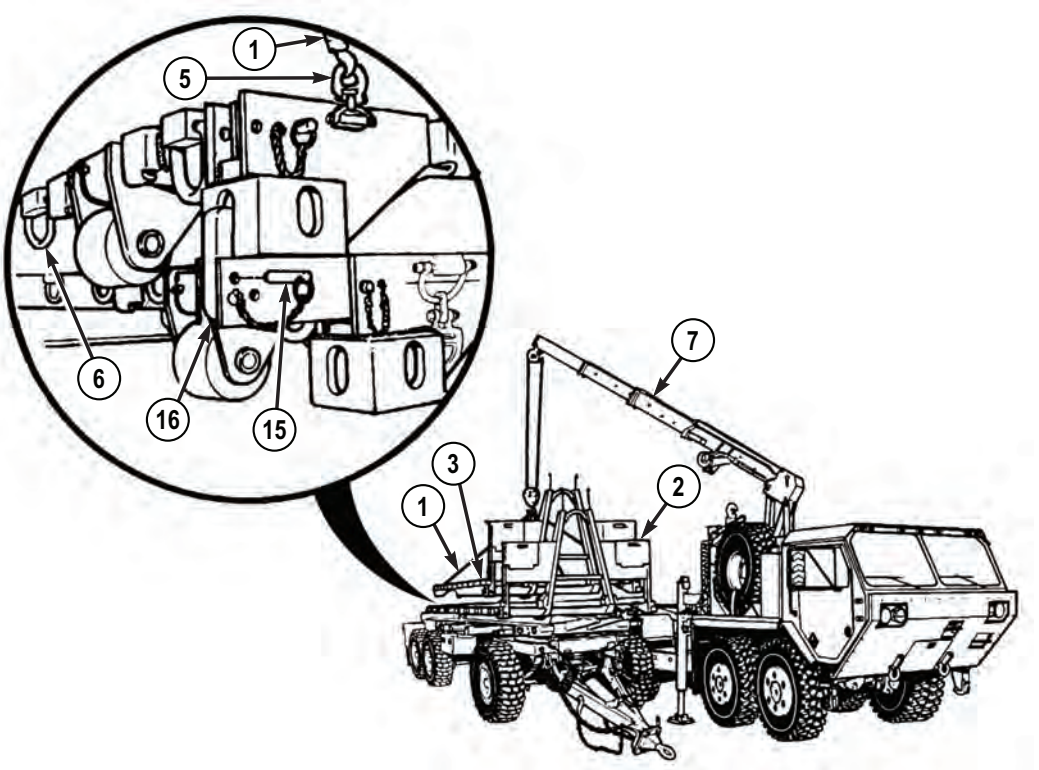


Figure 9.

31. Install pin (15) to secure lock (16) in place.
32. Remove two lifting straps (1) from MHC (7).
33. Remove three lifting straps (1) from tiedown rings (3), (5), and (6).
34. Repeat Steps (15) through (33) for additional flatracks being stacked.

NOTE

Ensure lifting straps are installed in same flatrack stowage box that lifting straps were removed from in Step (1).

35. Stow three lifting straps (1) in stowage box (2).

END OF TASK

UNLOADING

WARNING

Ensure flatracks are loaded or unloaded on trailer one at a time. MHC on vehicle is not capable of handling more than one flatrack at a time. Failure to comply may result in injury or death to personnel.

NOTE

- Ensure air system on trailer is fully charged.
- Ensure vehicle is positioned along side of trailer.

1. Remove three lifting straps (1) from flatrack stowage box (2).

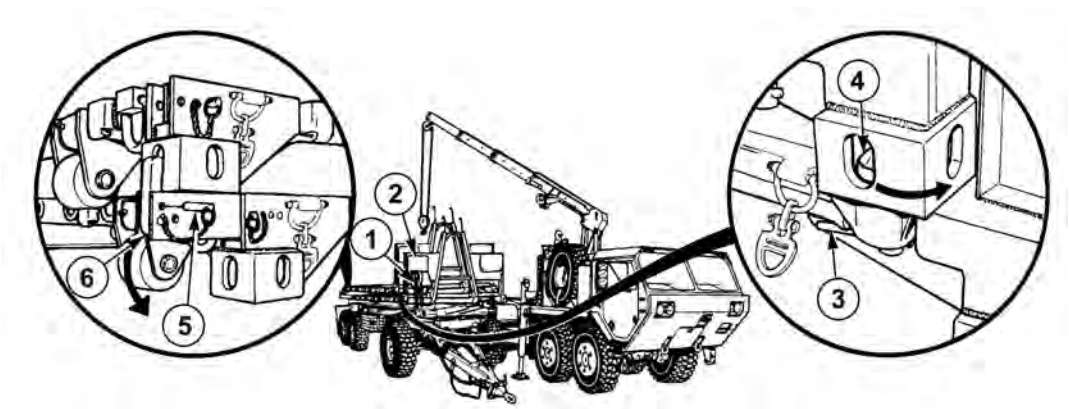


Figure 10.

NOTE

- If there is more than one flatrack on trailer, Steps (2) through (4) are performed on top flatrack only.
- If there is more than one flatrack on trailer, Perform Steps (2) though (4) and skip Step (5). If there is only one flatrack on trailer, go on to Step (5).

2. Turn handle (3) on two locks (4) to UNLOCK position.
3. Remove pin (5) from lock (6).

UNLOADING - Continued

4. Rotate lock (6) downward.
5. Retract two load locks (7) on trailer (8).

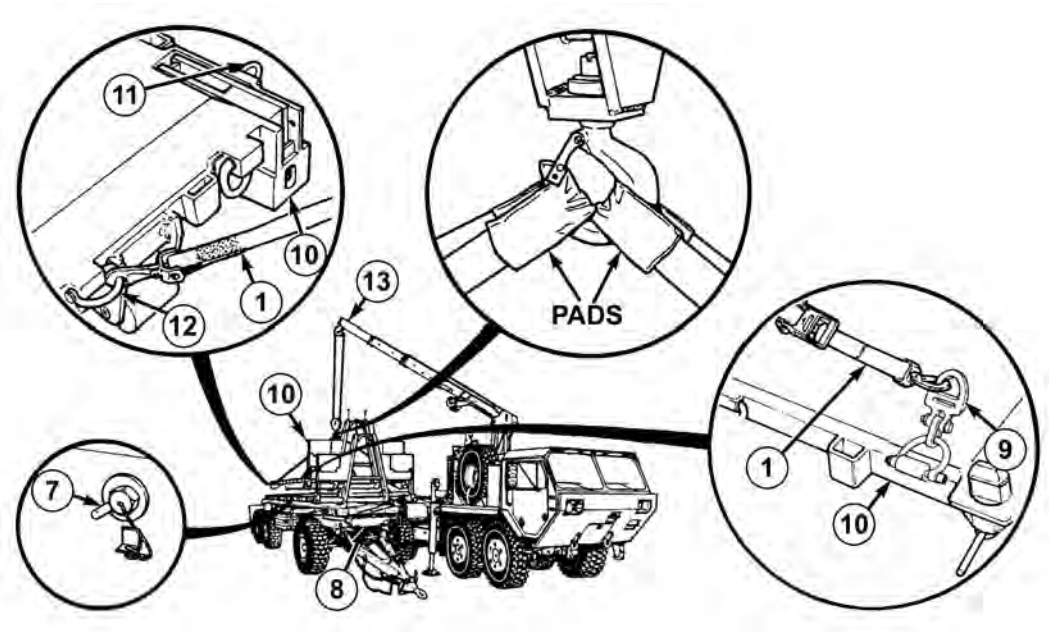


Figure 11.

WARNING

Ensure lifting straps are wrapped a minimum of three times around ratchet of lifting strap. Failure to comply may result in lifting strap being released and flatrack may fall causing injury or death to personnel.

6. Attach one lifting strap (1), from left to right, to two front tiedown rings (9) on flatrack (10).
7. Attach one lifting strap (1), from left to right, to two rear tiedown rings (11) on flatrack (10).
8. Attach lifting strap (1) to tiedown ring (12) at rear of flatrack (10).

UNLOADING - Continued

9. Attach two lifting straps (1) to MHC (13).

WARNING

M1077 flatrack weighs 3,200 lbs (1,452 kg). M1077A1 flatrack weighs 3,900 lbs (1,769 kg). Do not attempt to lift or move flatrack without the aid of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

WARNING

Ensure pads on lifting straps are positioned in lifting clevis of MHC. Failure to comply may result in breakage of lifting straps causing injury or death to personnel.

CAUTION

Ensure boom of MHC is positioned directly over center of flatrack prior to lifting flatrack from trailer. Failure to comply may result in uneven lifting of flatrack and damage to equipment may result.

NOTE

If flatrack is not being raised level, Perform Steps (10) through (12). If flatrack is level, go to Step (14).

10. Raise flatrack (10) until flatrack clears trailer (8) and ensure flatrack is level.

UNLOADING - Continued

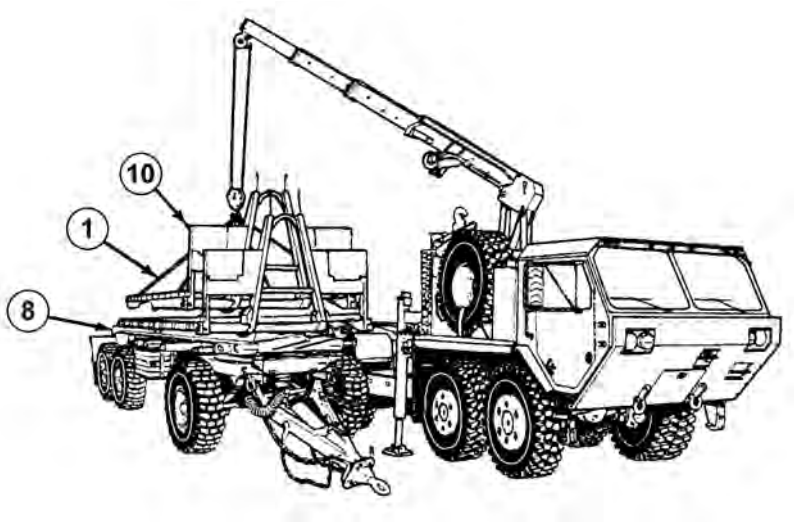


Figure 12.

11. Lower flatrack (10) to trailer (8).
12. Shorten or lengthen two lifting straps (1) as required.
13. Repeat Steps (9) through (11) until flatrack (10) is level when raised.

CAUTION

Use extreme care when positioning flatrack from trailer to ground. If flatrack is not moved slowly, flatrack may contact winch on MHC and damage may occur to equipment.

14. With the aid of an assistant, hold lifting strap (1) on rear of flatrack (10) to guide flatrack in position while operating MHC (13) and position flatrack on ground.
15. Remove two lifting straps (1) from MHC (13).

UNLOADING - Continued

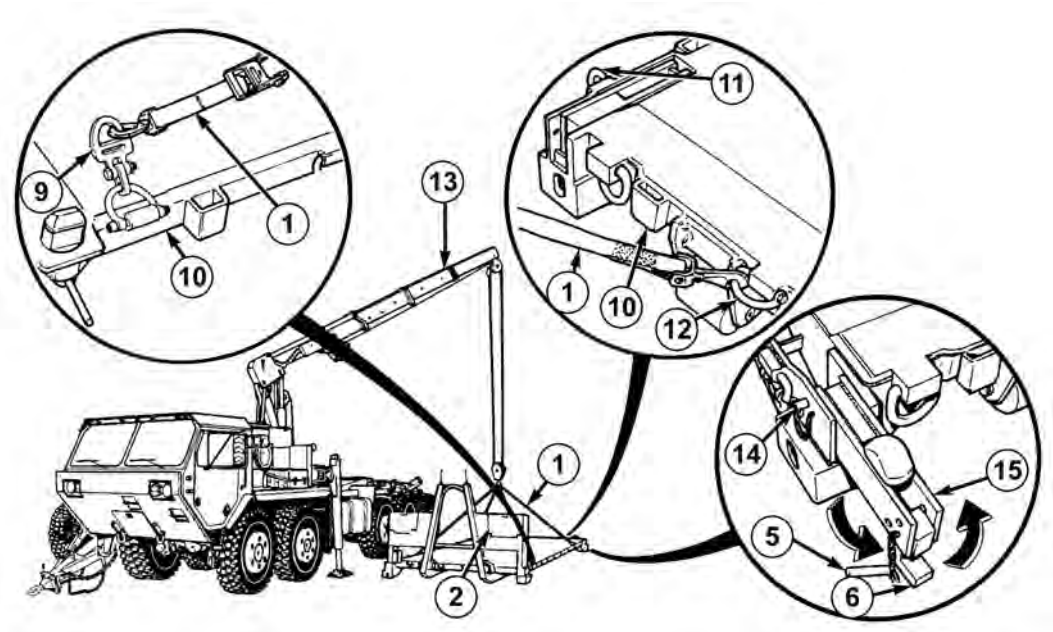


Figure 13.

16. Remove three lifting straps (1) from tiedown rings (9), (11), and (12) on flatrack (10).
17. Rotate lock (6) upward and install pin (5) to secure lock.
18. Remove pin (14) from extension (15) and rotate extension inward to stowed position.
19. Install pin (14) in extension (15).
20. Repeat Steps (2) through (19) for additional flatracks being unloaded.
21. Stow three lifting straps (1) in flatrack stowage box (2).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
ASSEMBLY AND PREPARATION FOR USE

INITIAL SETUP:

Not Applicable

ASSEMBLY AND PREPARATION FOR USE

1. Unpacking. Refer to Unpacking and Packing for unpacking instructions.
2. Assembly and Installation. Refer to Loose Parts Installation for assembly and installation instructions, including removal of rollers from stowage points. Refer to Sideboard Kit (WP 0014) and Cargo Tarp (WP 0015) Installation and Removal Procedures, if sideboards, straps and cargo tarp must be installed.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
UNLOCK AND LOCK TWIST LOCKS

INITIAL SETUP:

Not Applicable

UNLOCK AND LOCK TWIST LOCKS

UNLOCK TWIST LOCKS

NOTE

- Sliding handle may be used from Basic Issue Items (BII) to rotate twist lock.
- Right and left pin assemblies are operated the same way. Front and rear pin assemblies are operated the same way. Left front shown.

1. Rotate locking handle (1) of twist lock (2) approximately 1/8 turn in either direction.

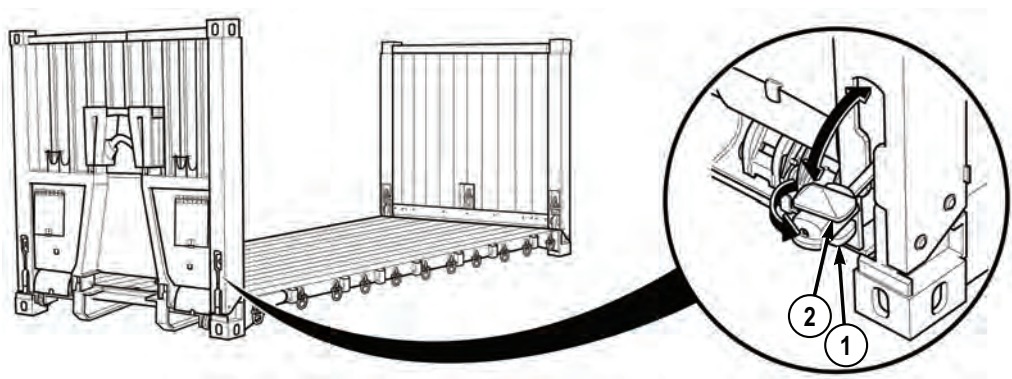


Figure 1.

2. Rotate twist lock (2) backwards from stowage position.

LOCK TWIST LOCKS

1. Rotate twist locks (2) into stowage position.

LOCK TWIST LOCKS - Continued

2. Rotate locking handle (1) of twist lock approximately 1/8 turn in either direction to lock twist lock in stowage position.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LOWER AND RAISE FRONT AND REAR WALL

INITIAL SETUP:

Not Applicable

LOWER AND RAISE FRONT AND REAR WALL

LOWER WALL

WARNING

Front wall weighs 1,500 lbs (680 kg). Rear wall weighs 1,200 lbs (544 kg). The flatrack is equipped with spring-loaded counterbalance mechanisms that allow the wall to be lowered by two soldiers. Raising and lowering operations must be conducted on level ground. Do not stand under walls when raising or lowering. Use an assistant when raising or lowering the rear wall. Failure to comply may result in injury or death to personnel.

NOTE

- Front and rear walls are lowered and raised the same way. Front wall is shown.
- Right and left pin assemblies are removed the same way. Front left is shown.
- Perform Step (1) for front wall only.

1. Install rollers in front wall (WP 0033).
2. Remove handle, socket, and two ratchet straps from stowage box (1).

LOWER WALL - Continued

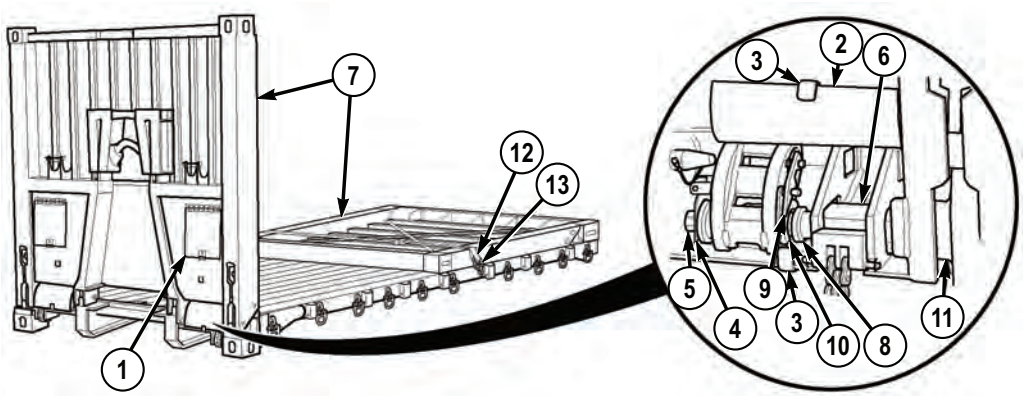


Figure 1.

3. Position mud flap (2) in upper clip (3).
4. Raise pin lock (4) from adjusting nut (5).
5. Turn adjusting nut (5) counterclockwise to loosen pin (6) in wall (7) until collar (8) contacts pin (6).

CAUTION

- Ensure pin is slid completely out of hinge or damage to equipment will occur when wall is lowered.
- Ensure wall mounted tiedown rings and other equipment are properly stowed prior to lowering wall or damage to equipment could result.

6. Lift safety catch (9) and collar (10) and slide pin (6) out of hinge (11).
7. Repeat Steps (2) through (5) to release remaining pin (6).
8. Stow handle and socket in stowage box (1).
9. Position mud flap (2) in lower clip (3).
10. With the aid of an assistant, lower wall (7).
11. Install ratchet strap (12) on two tiedown rings (13) and wall (7).

RAISE WALL

WARNING

Wall may raise abruptly when ratchet strap is released. Ensure personnel are clear of wall when releasing ratchet strap. Failure to comply may result in injury or death to personnel.

1. Remove ratchet strap (12) from two tiedown rings (13) and wall (7).

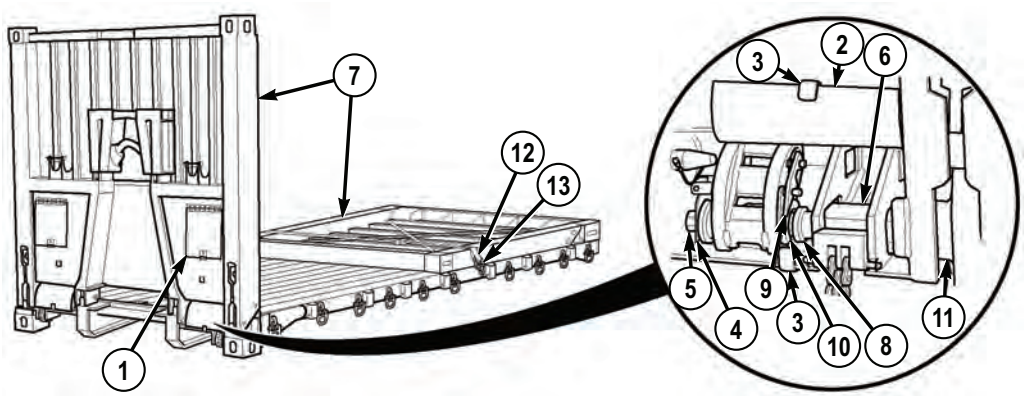


Figure 2.

2. Remove mud flap (2) from lower clip (3) and position in upper clip.
3. Remove handle and socket from stowage box (1).
4. With the aid of an assistant, raise wall (7).

WARNING

Wall may raise abruptly when ratchet strap is released. Ensure personnel are clear of wall when releasing ratchet strap. Failure to comply may result in injury or death to personnel.

RAISE WALL - Continued

WARNING

Front wall weighs 1,500 lbs (680 kg). Rear wall weighs 1,200 lbs (544 kg). The flatrack is equipped with spring-loaded counterbalance mechanisms that allow the wall to be lowered by two soldiers. Raising and lowering operations must be conducted on level ground. Do not stand under walls when raising or lowering. Use an assistant when raising or lowering the rear wall. Failure to comply may result in injury or death to personnel.

CAUTION

Ensure pins are positioned completely out of hinge or damage to equipment will occur when wall is raised.

NOTE

- Front and rear walls are lowered and raised the same way. Front wall is shown.
- Ensure twist locks are in stowed position prior to raising wall.
- Pin may need to be lifted slightly to position into alignment slots.
- Ensure flat sides of pin align with flat sides of alignment slots.

5. Lift safety catch (9) and collar (10) and slide pin (6) towards hinge (11) until safety catch and collar fit securely over pin.
6. Secure safety catch (9) and collar (10) over pin (6).
7. Tighten adjusting nut (5) until end of pin (6) is approximately even with outside edge of wall (7).

CAUTION

Ensure area is free of dirt and debris where pin is installed. Failure to comply will result in pin being hard to install and damage to equipment may occur.

NOTE

Adjusting nut may have to be adjusted slightly for pin lock to lock properly over adjusting nut.

RAISE WALL - Continued

8. Install lock pin (4) over adjusting nut (5).
9. Position mud flap (2) in lower clip (3).
10. Repeat Steps (5) through (9) to install remaining pin (6).
11. Stow handle, socket and two ratchet straps in stowage box (1).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
SIDEBOARD KIT

INITIAL SETUP:

Not Applicable

SIDEBOARD KIT

INSTALLATION

CAUTION

Sideboards and straps secure the load to flatrack. Install sideboards and straps to flatrack before trying to move load or damage to equipment may result.

NOTE

Refer to illustration for correct panel location.

1. Line up stakes (1) of sideboard sections (2) with sideboard pockets (3) on flatrack. Push sideboard sections down until seated in pockets.

INSTALLATION - Continued

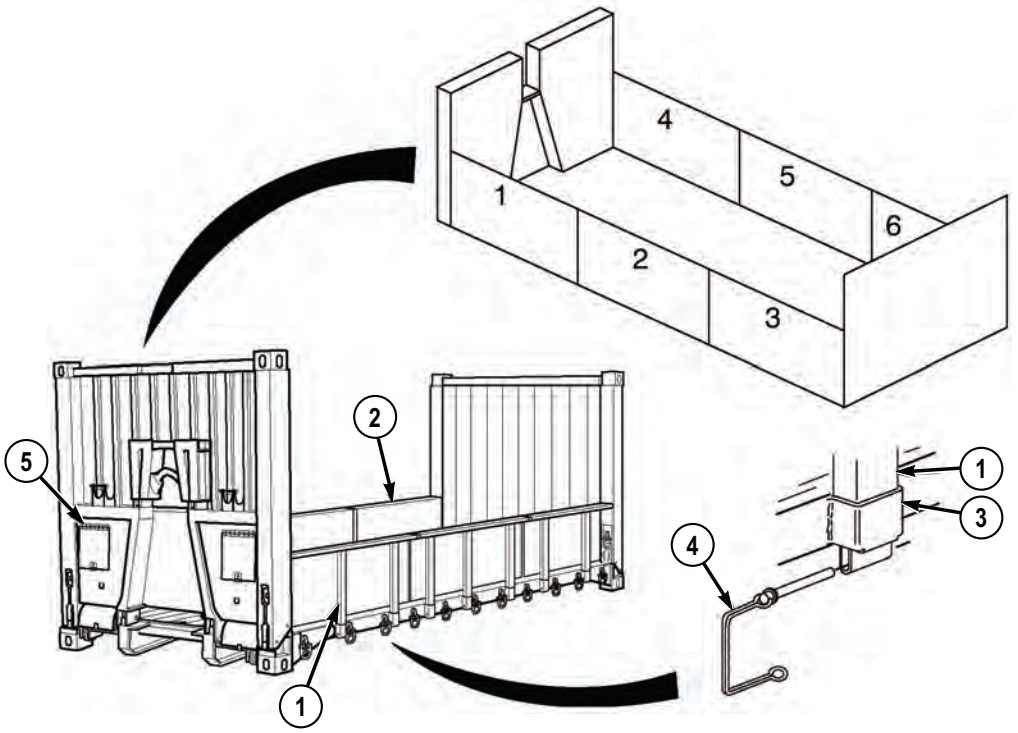


Figure 1.

2. Anchor sideboard sections (2) to sideboard pockets (3) with retainer clips (4).

REMOVAL

1. Remove tiedown straps from cargo and stow in stowage box (5).

REMOVAL - Continued

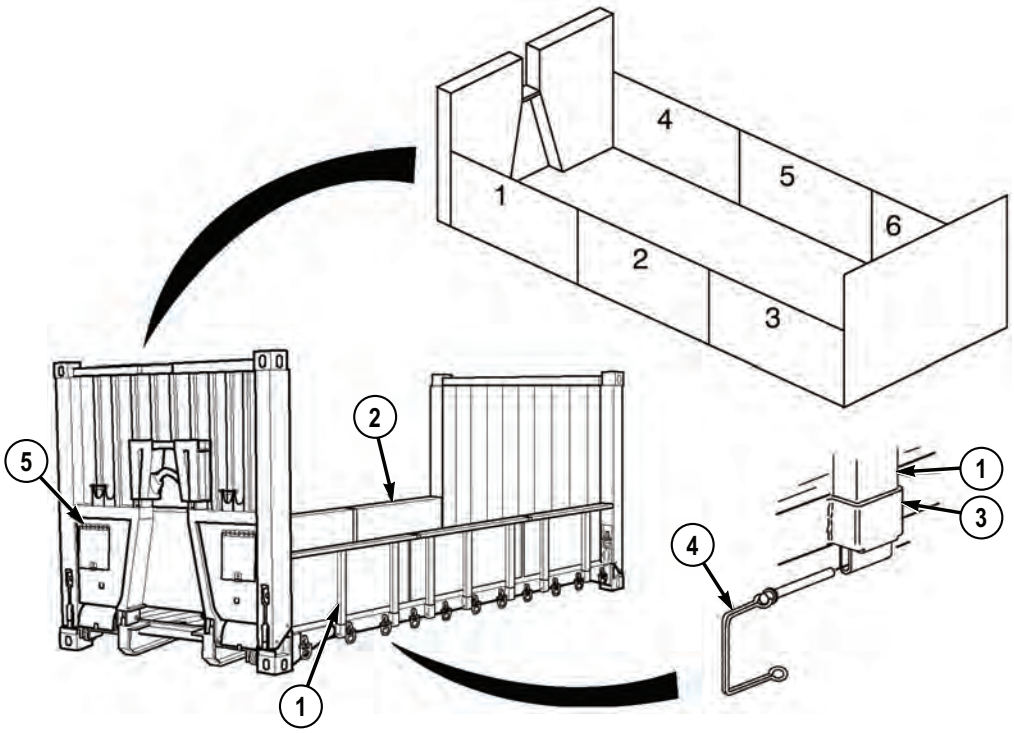


Figure 2.

2. Remove retainer clips (4) from sideboard pockets (3) and stakes (1).
3. Lift sideboard sections (2) out of sideboard pockets (3).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
CARGO TARP

INITIAL SETUP:

Not Applicable

CARGO TARP

INSTALLATION

1. Remove cargo tarp (1) from stowage location.

INSTALLATION - Continued

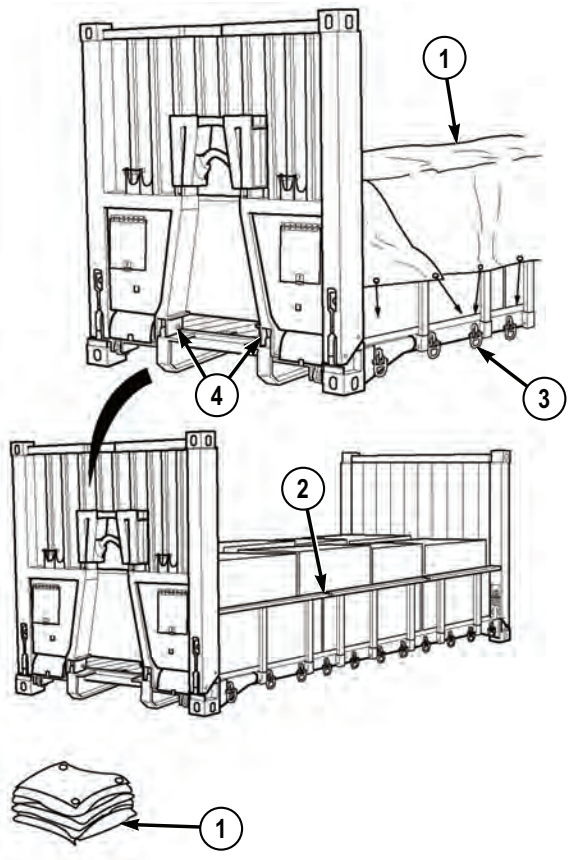


Figure 1.

2. Place cargo tarp (1) on top of cargo on right rear corner.
3. Unfold all four sides, positioning cargo tarp (1) on the sideboards (2).
4. Secure the side and rear tiedown ropes to flatrack tiedown rings (3).
5. Secure front tiedown ropes to flatrack tiedown rings (4).
6. Check and tighten all tiedown ropes to ensure cargo tarp (1) is stretched tightly over the cargo and does not flag or flap during transport.

REMOVAL

1. Remove all tiedown ropes of cargo tarp (1) from flatrack tiedown rings (3) and (4).

REMOVAL - Continued

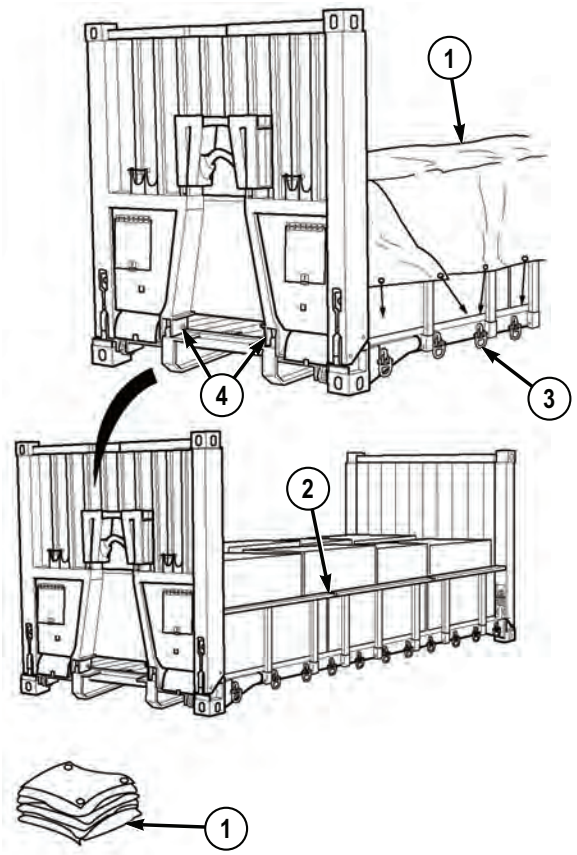


Figure 2.

2. Lift left side of cargo tarp (1) and pull over top.
3. Lift right side of cargo tarp (1) and pull over top.
4. Lift front of cargo tarp (1) and pull over top.
5. Lift rear of cargo tarp (1) and pull over top.
6. Stow all tiedown ropes inside of cargo tarp (1).
7. Fold cargo tarp (1) toward rear. Ensure all tiedown ropes are inside cargo tarp (1).
8. Fold cargo tarp (1) from left to right until completely folded.
9. Return cargo tarp (1) to stowage location.

FOLLOW-ON MAINTENANCE

Remove sideboards. (WP 0014)

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION PROCEDURES

INITIAL SETUP:

Not Applicable

NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION PROCEDURES

Refer to FM 3-11.5 (WP 0034), Chemical, Biological, and Radiological Decontamination, for CBR instructions.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
LOADING SINGLE FLATRACK ON PLS VEHICLE OR TRAILER

INITIAL SETUP:

Not Applicable

LOADING SINGLE FLATRACK ON PLS VEHICLE OR TRAILER

CAUTION

For loading and transport of a single loaded or unloaded flatrack on vehicle or trailer, the walls must be in the raised position. Failure to follow this procedure could cause damage to equipment.

Refer to procedures to load and unload the flatrack to vehicle or trailer using the Load Handling System (LHS).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
STACKING/LOADING TWO FLATRACKS ON PLS VEHICLE OR TRAILER

INITIAL SETUP:

Not Applicable

STACKING/LOADING TWO FLATRACKS ON PLS VEHICLE OR TRAILER

STACKING/LOADING TWO FLATRACKS

1. Remove ratchet straps from stowage box.

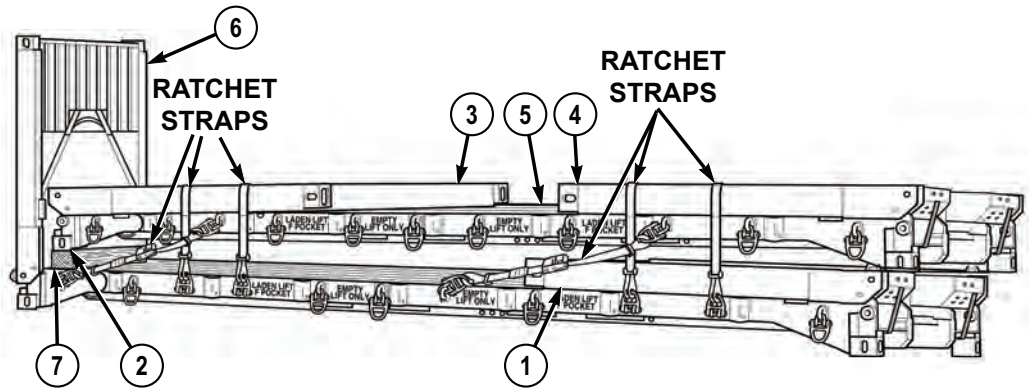


Figure 1.

2. Fold down rear wall (1) of lower flatrack (2).
3. Fold down front wall (3) and rear wall (4) of upper flatrack (5) (WP 0013).
4. Install wooden block , 8 by 8 by 96 in. (203.2 by 203.2 by 2438.4 mm) against raised front wall (6) of lower flatrack (2).

STACKING/LOADING TWO FLATRACKS - Continued

WARNING

Flatrack weighs 7,300 lbs (3,312 kg). Use a suitable lifting device or forklift to lift flatrack. Failure to comply may result in injury or death to personnel.

CAUTION

- Flatracks have two sets of forklift pockets. If lifting one empty flatrack, use the inside set of forklift pockets. If lifting a loaded flatrack or lifting multiple stacked empty flatracks, use the outside set of forklift pockets. Always use the forklift pockets of the lowest flatrack.
- Forklift forks must be a minimum of 70.0 in. (1778 mm) in length.

5. Using a lifting device, position upper flatrack (5) over lower flatrack (2) so that front ISO corner castings (7) of upper flatrack (5) are aligned over wooden block and the sides of both flatracks are evenly aligned.

CAUTION

Ensure ratchet straps are attached to tiedown rings in the exact position shown. Failure to comply could result in flatrack sliding backwards resulting in damage to equipment.

NOTE

Four ratchet straps are positioned over top flatrack and secured to lower flatrack tiedown rings. Four ratchet straps are attached to upper and lower flatrack tiedown rings.

6. Attach eight ratchet straps to both sides of lower and upper flatrack (2) and (5).
7. Tighten ratchet straps to secure upper flatrack (5) to lower flatrack (2). Tie off excess strap.
8. Load flatracks to vehicle or trailer using Load Handling System (LHS). Refer to TM 9-2320-364-10. (WP 0034)

UNSTACKING/UNLOADING TWO FLATRACKS

1. Unload flatracks using the LHS. Refer to TM 9-2320-364-10. (WP 0034)

UNSTACKING/UNLOADING TWO FLATRACKS - Continued

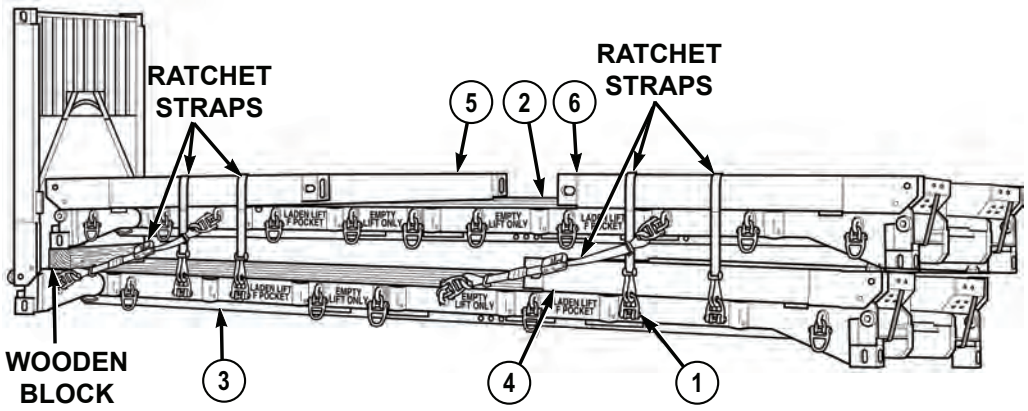


Figure 2.

2. Remove eight ratchet straps from tiedown rings (1) and stow in stowage box.

WARNING

Flatrack weighs 7,300 lbs (3,312 kg). Use a suitable lifting device or forklift to lift flatrack. Failure to comply may result in injury or death to personnel.

CAUTION

- Flatracks have two sets of forklift pockets. If lifting one empty flatrack, use the inside set of forklift pockets. If lifting a loaded flatrack or lifting multiple stacked empty flatracks, use the outside set of forklift pockets. Always use the forklift pockets of the lowest flatrack.
- Forklift forks must be a minimum of 70.0 in. (1778 mm) in length.

3. Using a lifting device, remove upper flatrack (2) from lower flatrack (3).
4. Remove wooden block from lower flatrack (3).
5. Raise rear wall (WP 0013) (4) of lower flatrack (3).

UNSTACKING/UNLOADING TWO FLATRACKS - Continued

6. Raise front wall (5) and rear wall (6) (WP 0013) of upper flatrack (2).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
STACKING/LOADING THREE FLATRACKS ON PLS VEHICLE OR TRAILER

INITIAL SETUP:

Not Applicable

STACKING/LOADING THREE FLATRACKS ON PLS VEHICLE OR TRAILER

STACKING/LOADING THREE FLATRACKS

WARNING

Flatracks must be empty when stacked. Failure to comply may result in injury or death to personnel.

CAUTION

Only three flatracks may be stacked and loaded on the PLS vehicle and trailer using the Load Handling System and a M1077 flatrack. Failure to comply may cause damage to equipment.

1. Refer to Roller Replacement (WP 0033) and remove rollers from three flatracks to be stacked.

NOTE

Sliding handle from stowage box may be used if locking handle is difficult to turn.

2. Lower front and rear walls (WP 0013) (1) and (2) of flatrack (3).

STACKING/LOADING THREE FLATRACKS - Continued

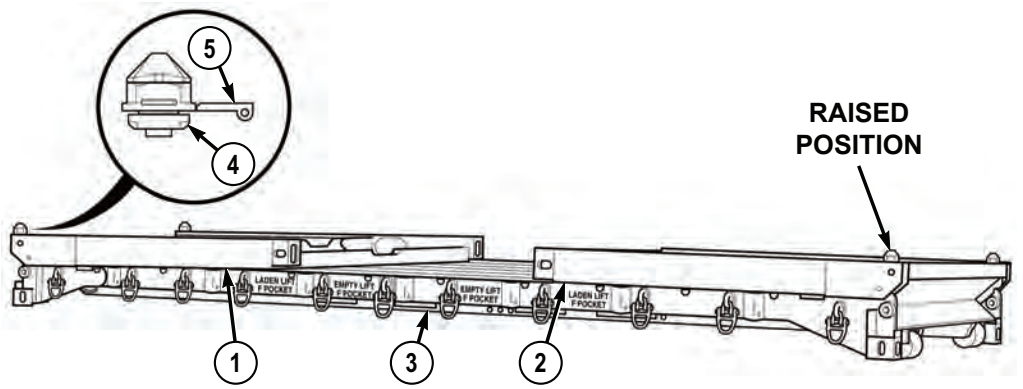


Figure 1.

3. On lower flatrack (3), rotate locking handle (4) of four twist locks (5) 45 degrees.
4. Rotate twist locks (5) back to the raised position.
5. Rotate locking handle (4) of four twist locks (5) 45 degrees.

WARNING

Flatrack weighs 7,300 lbs (3,312 kg). Use a suitable lifting device or forklift to lift flatrack. Failure to comply may result in injury or death to personnel.

CAUTION

- Flatracks have two sets of forklift pockets. If lifting one empty flatrack use the inside set of forklift pockets. If lifting a loaded flatrack or lifting multiple stacked empty flatracks, use the outside set of forklift pockets. Always use the forklift pockets of the lowest flatrack.
- Forklift forks must be a minimum of 70.0 in. (1778 mm) in length.

6. With the aid of two assistants and using a lifting device, position upper flatrack (6) over lower flatrack (3) so that ISO corner castings (7) are aligned over the raised twist locks (5) of lower flatrack (3).

STACKING/LOADING THREE FLATRACKS - Continued

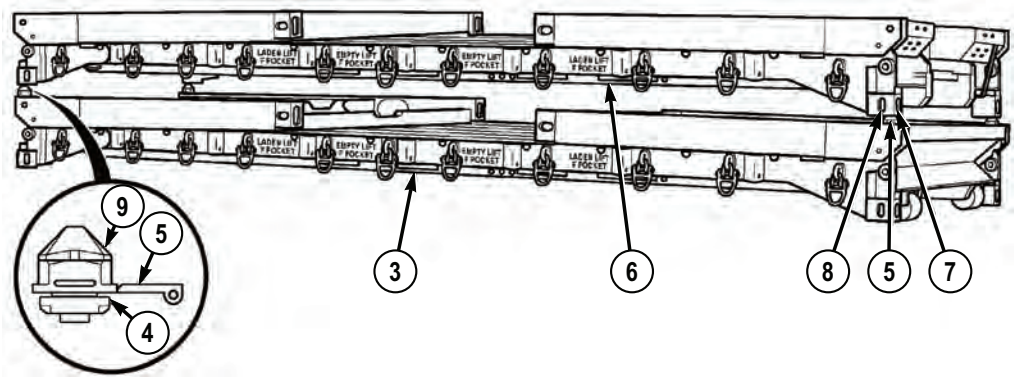


Figure 2.

CAUTION

When stacking flatracks, ensure that twist locks of lower flatracks are aligned with ISO corner castings of upper flatracks. Failure to align twist locks and ISO corner castings could cause damage to equipment.

7. Lower upper flatrack (6) onto lower flatrack (3).

WARNING

Twistlocks must be completely locked in place. Ensure that twistlocks have snapped fully into place. Failure to comply may result in injury or death to personnel.

NOTE

Sliding handle from stowage box may be used if locking handle is difficult to turn.

8. Reach through openings (8) of ISO corner castings (7) of upper flatrack (6) and rotate locking handles (4) of four twist locks (5) 45 degrees in either direction to lock both flatracks together.
9. Visually inspect four twist locks (5) to ensure that stems (9) have engaged ISO corner castings (7) of upper flatrack (6).
10. Repeat Steps (1) through (9) for stacking the third (top) flatrack.

STACKING/LOADING THREE FLATRACKS - Continued

11. Refer to Assembly and Preparation for Use (WP 0006) and unlock front ISO locks (10) and rear ISO locks (11) on M1077 flatrack (12).

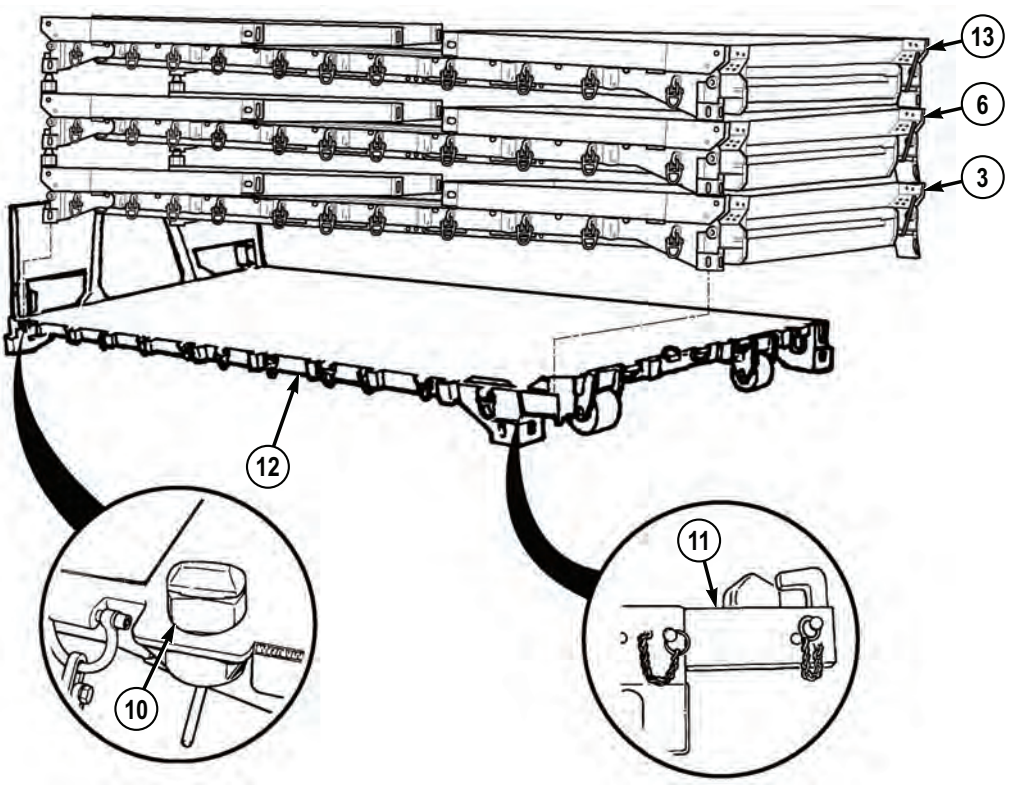


Figure 3.

WARNING

Three M1 flatracks stacked together weigh 21,900 lbs (9,934 kg). Use suitable forklift to lift flatracks. Failure to comply may result in injury or death to personnel.

STACKING/LOADING THREE FLATRACKS - Continued

CAUTION

- Flatracks have two sets of forklift pockets. If lifting one empty flatrack, use the inside set of forklift pockets. If lifting a loaded flatrack or lifting multiple stacked empty flatracks, use the outside set of forklift pockets. Always use the forklift pockets of the lowest flatrack.
- Forklift forks must be a minimum of 70.0 in. (1778 mm) in length.
- Ensure flatrack locks are free of snow, dirt and debris prior to lowering flatrack or proper locking will not occur.
- When stacking flatracks, ensure that twist locks of lower flatracks are aligned with ISO corner castings of upper flatracks. Failure to align twist locks and ISO corner castings could cause damage to equipment.

12. With the aid of an assistant and using a suitable forklift, position three flatracks (3), (6) and (13) over M1077 flatrack (12).

STACKING/LOADING THREE FLATRACKS - Continued

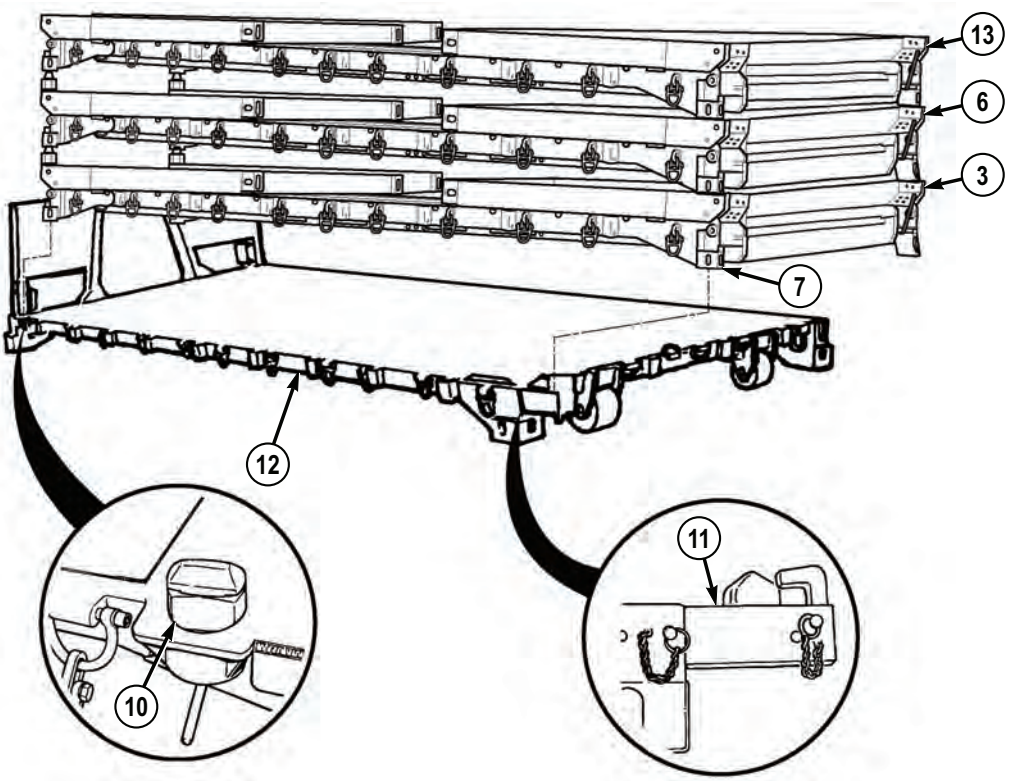


Figure 4.

13. Align ISO corner castings (7) on flatrack (3) with ISO locks (10) and (11) on M1077 flatrack (12). Lower flatracks (3), (6) and (13) on M1077 flatrack (12).
14. Refer to Assembly and Preparation for Use (WP 0006) and lock front ISO locks (10) and rear ISO locks (11) on M1077 flatrack (12) to flatrack (3).
15. Load M1077 flatrack (12) with three flatracks (3), (6), and (13) to PLS vehicle or trailer using LHS .

UNSTACKING/UNLOADING THREE FLATRACKS

1. M1077 flatrack (12) with three flatracks (3), (6) and (13) from PLS vehicle or trailer using LHS. Refer to TM 9-2320-364-10. (WP 0034)

UNSTACKING/UNLOADING THREE FLATRACKS - Continued

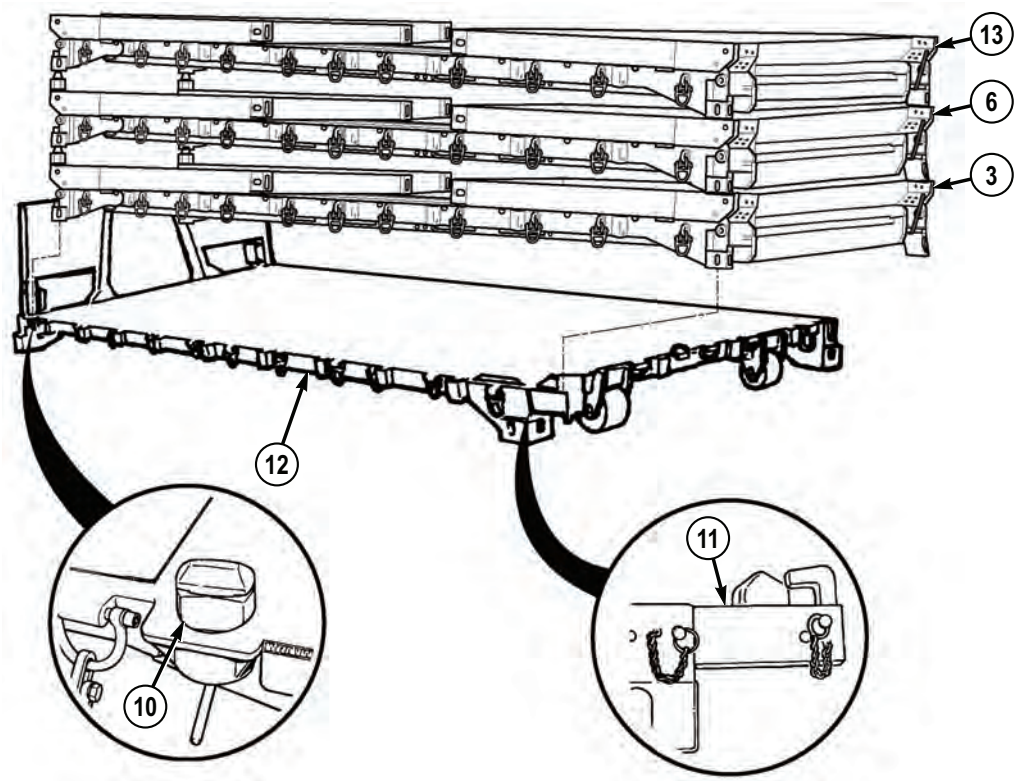


Figure 5.

WARNING

Three M1 flatracks stacked together weigh 21,900 lbs (9,934 kg). Use suitable forklift to lift flatracks. Failure to comply may result in injury or death to personnel.

UNSTACKING/UNLOADING THREE FLATRACKS - Continued

CAUTION

- Flatracks have two sets of forklift pockets. If lifting one empty flatrack, use the inside set of forklift pockets. If lifting a loaded flatrack or lifting multiple stacked empty flatracks, use the out side set of forklift pockets. Always use the forklift pockets of the lowest flatrack.
- Forklift forks must be a minimum of 70.0 in. (1778 mm) in length.

2. Unlock front ISO locks (10) and rear ISO locks (11) (WP 0006) on M1077 flatrack (12) from flatrack (3).
3. With the aid of an assistant and using a suitable forklift, remove flatracks (3), (6) and (13) from M1077 flatrack (12).
4. Lock ISO locks (WP 0006) (10) and (11) on M1077 flatrack (12).

WARNING

Flatrack weighs 7,300 lbs (3,312 kg). Use a suitable lifting device or forklift to lift flatrack. Failure to comply may result in injury or death to personnel.

CAUTION

- Flatracks have two sets of forklift pockets. If lifting one empty flatrack use the inside set of forklift pockets. If lifting a loaded flatrack or lifting multiple stacked empty flatracks, use the outside set of forklift pockets. Always use the forklift pockets of the lowest flatrack.
- Forklift forks must be a minimum of 70.0 in. (1778 mm) in length.

5. Reach through openings (8) of ISO corner casting (7) on top flatrack (12) and turn locking handles (4) of twist locks (5) 90 degrees to release top flatrack.

UNSTACKING/UNLOADING THREE FLATRACKS - Continued

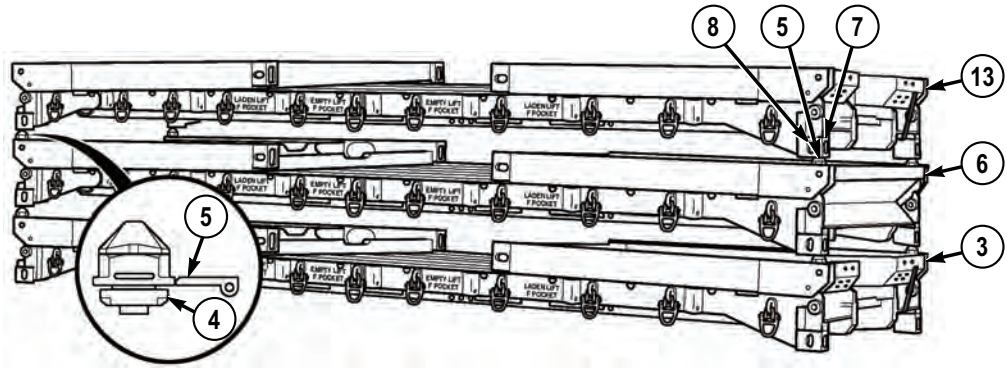


Figure 6.

WARNING

During unstacking operations, unlock the twist locks on only one flatrack at a time. Do not attempt to unload multiple flatracks that are unlocked. For example, it is permissible to remove up to two flatracks at a time, however, both flatracks must be locked together. Failure to comply may result in injury or death to personnel.

NOTE

Sliding handle from stowage box may be used if locking handle is difficult to turn.

6. Using a lifting device, lift upper flatrack (12) from center flatrack (6).
7. Repeat Steps (5) and (6) to remove center flatrack (6) from lower flatrack (3).
8. Rotate twist locks (5) forward into their stowed positions.
9. Rotate locking handles (4) of twist locks (5) 90 degrees in either direction to lock twist locks in stowage position.

UNSTACKING/UNLOADING THREE FLATRACKS - Continued

10. Repeat Step (9) to return all twist locks (5) to stowage position.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
STACKING/UNSTACKING LOADED FLATRACKS

INITIAL SETUP:

Not Applicable

STACKING/UNSTACKING LOADED FLATRACKS

STACKING

WARNING

Flatrack and load weighs up to 38,500 lbs (17,463 kg). Flatrack and load, including sideboards and tarp, loaded on PLS vehicle or trailer must not exceed 36,600 lbs (16,602 kg). Attach suitable lifting device. Failure to comply may result in injury or death to personnel.

WARNING

Flatracks are designed to be stacked in loaded condition up to nine using shipboard double twist locks. Stacking more than nine flatracks could cause damage to equipment. Failure to comply may result in injury or death to personnel.

NOTE

Double twist locks are not in Basic Issue Items (BII) of the flatrack. These devices are provided on board shipping vessels.

1. Attach lifting device and spreader bar to four upper ISO corner castings (1) of upper flatrack (2).

STACKING - Continued

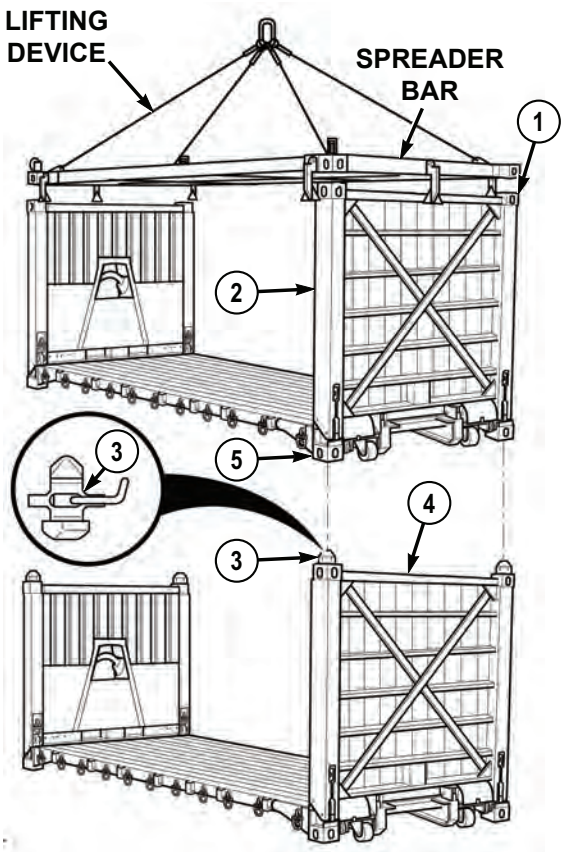


Figure 1.

2. Position four double twist locks (3) in upper ISO corner castings (1) of lower flatrack (4).
3. Raise flatrack and align lower ISO corner castings (5) of upper flatrack (2) over upper ISO corner castings (1) and double twist locks (3) of lower flatrack (4).
4. Position upper flatrack (2) on lower flatrack (4).
5. Secure upper flatrack (2) to lower flatrack (4) with four double twist locks (3) by turning double twist locks 90 degrees in either direction.
6. Remove lifting device and spreader bar.

UNSTACKING

WARNING

Flatrack and load weighs up to 38,500 lbs (17,463 kg). Flatrack and load, including sideboards and tarp, loaded on PLS vehicle or trailer must not exceed 36,600 lbs (16,602 kg). Attach suitable lifting device. Failure to comply may result in injury or death to personnel.

1. Attach lifting device and spreader bar to four upper ISO corner castings (1) of upper flatrack (2).

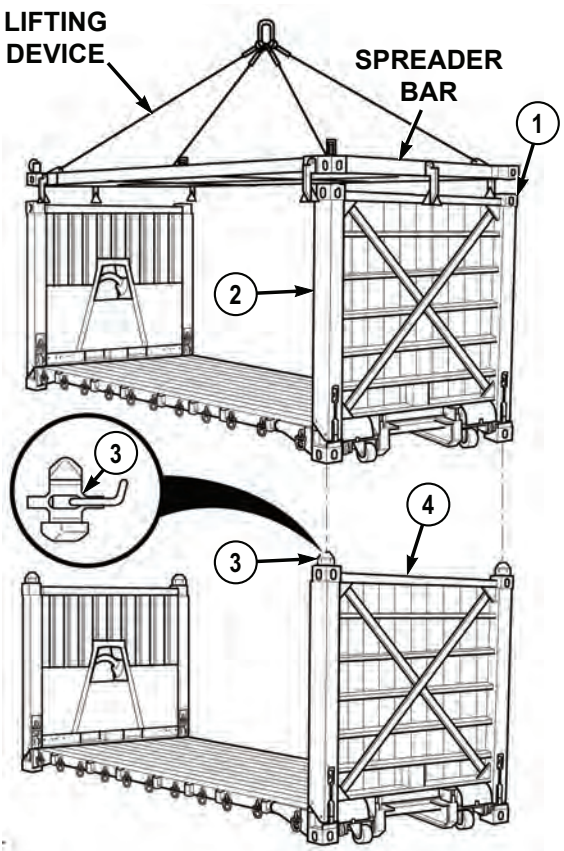


Figure 2.

UNSTACKING - Continued

2. Unlock double twist locks (3) by turning 90 degrees in either direction.
3. Lift upper flatrack (2) from lower flatrack (4).
4. Lower upper flatrack (2) to ground.
5. Remove lifting device from upper flatrack (2).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
PREPARATION FOR STORAGE OR SHIPMENT

INITIAL SETUP:

Not Applicable

PREPARATION FOR STORAGE OR SHIPMENT

PREPARATION FOR STORAGE

1. Refer to AR 750-1 for administrative storage procedures. If short-term storage is indicated, go to Step (2).

WARNING

SOLVENT CLEANING COMPOUND (DRYCLEANING SOLVENT)

- Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in a well-ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to comply may result in injury or death to personnel.
- The flashpoint for Type II solvent cleaning compound is 141 to 198°F (61 to 92°C), and Type III is 200 to 241°F (93 to 116°C).

PREPARATION FOR STORAGE - Continued

- Improper cleaning methods and use of unauthorized cleaning solvents may result in injury to personnel and/or damage to equipment.
- Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to comply may result in injury or death to personnel.
- Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to comply may result in injury to personnel.
- Eye shields must be worn when cleaning with a wire brush. Failure to comply may result in injury to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury or death to personnel.

2. Use solvent cleaning compound (WP 0036, Table 1, Item 44, 45, 46) to clean or wash grease or oil from all metal parts. All surfaces must be clean to ensure removal of corrosion, soil, grease, or residues.
3. After cleaning, use cold water to rinse flatrack. Dry all parts thoroughly with a lint-free cleaning cloth (WP 0036, Table 1, Item 43).
4. Perform the Preventive Maintenance Checks and Services (WP 0029).
5. Schedule the next preventive maintenance checks and services on DD Form 314 (WP 0034), Preventive Maintenance Schedule and Record.
6. Report all deficiencies on DA Form 2407 (WP 0034) if the deficiencies appear to involve unsatisfactory design.
7. Spot paint all surfaces as necessary TB 43-0209 (WP 0034).

PREPARATION FOR SHIPMENT

1. Complete storage instructions.
2. Refer to AR 746-80 for Marking Supplies for Shipment.
3. Refer to AR 725-50 (WP 0034) and prepare all shipping documents to accompany flatrack.
4. Refer to TB 9-2300-281-35 (WP 0034), Standards for Overseas Shipment or Domestic Issue of Special Purpose Vehicles, if flatrack is to be shipped overseas.

PREPARATION FOR SHIPMENT - Continued

5. Refer to MIL-HDBK-138 (WP 0034), Container Inspection Handbook for Commercial and Military Intermodal Containers.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
DECALS AND INSTRUCTION PLATES

INITIAL SETUP:

Not Applicable

DECALS AND INSTRUCTION PLATES

STENCILS

The words EMPTY LIFT F POCKET and LADEN LIFT F POCKET are stenciled at four places on flatrack, two on each side.

DECALS AND INSTRUCTION PLATES

Refer to the figure below for location and description of decals and instruction plates.

DECALS AND INSTRUCTION PLATES - Continued

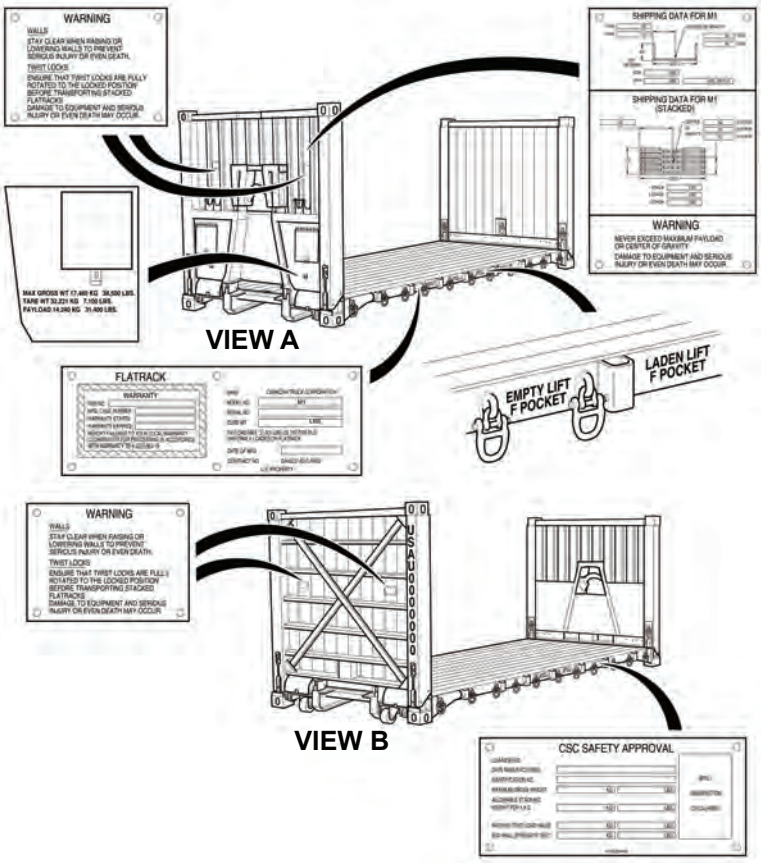


Figure 1.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
PREPARATION FOR RAIL TRANSPORT

INITIAL SETUP:

Not Applicable

PREPARATION FOR RAIL TRANSPORT

PREPARATION FOR RAIL TRANSPORT (WITH LOAD)

1. Remove two chains (1), load binders (2), and pry bar (3) from stowage boxes (4).

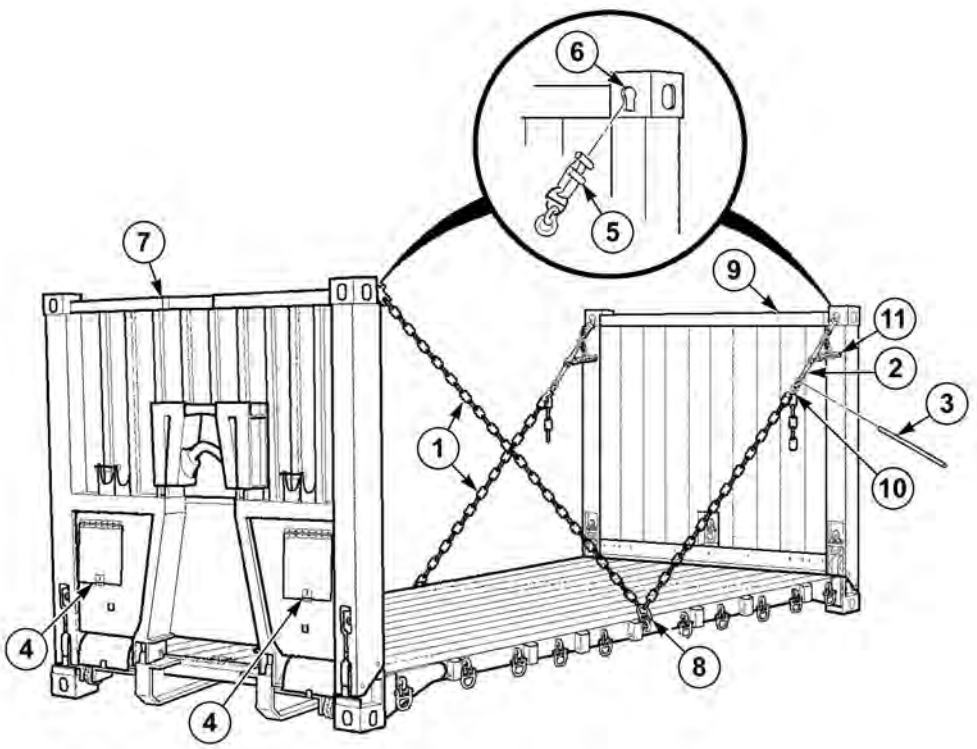


Figure 1.

PREPARATION FOR RAIL TRANSPORT (WITH LOAD) - Continued

2. Install T-hook (5) on chain (1) into slot (6) on upper corner of front wall (7). Rotate T-hook (5) to lock in place.
3. Position chain (1) through middle 25K tiedown ring (8).
4. Install T-hook (5) on load binder (2) into slot (6) on upper corner of rear wall (9). Rotate T-hook (5) to lock in place.
5. Extend load binder (2).
6. Take up slack of chain (1) and attach tightest link of chain (1) into hook (10) of load binder (2).

WARNING

Ensure T-hooks are locked into place before tightening load binders. T-hooks, chain and load binders could come apart. Failure to comply may result in injury or death to personnel.

NOTE

Positioning pry bar in eyelet of load binder will prevent chain from twisting.

7. Position pry bar (3) in eyelet of load binder (2) and tighten load binder using handle (11).
8. Repeat Steps (2) through (7) for remaining side.

PREPARATION AFTER RAIL TRANSPORT (WITH LOAD)

1. Position pry bar (3) in eyelet of load binder (2) and loosen load binder (2) using handle (11).

PREPARATION AFTER RAIL TRANSPORT (WITH LOAD) - Continued

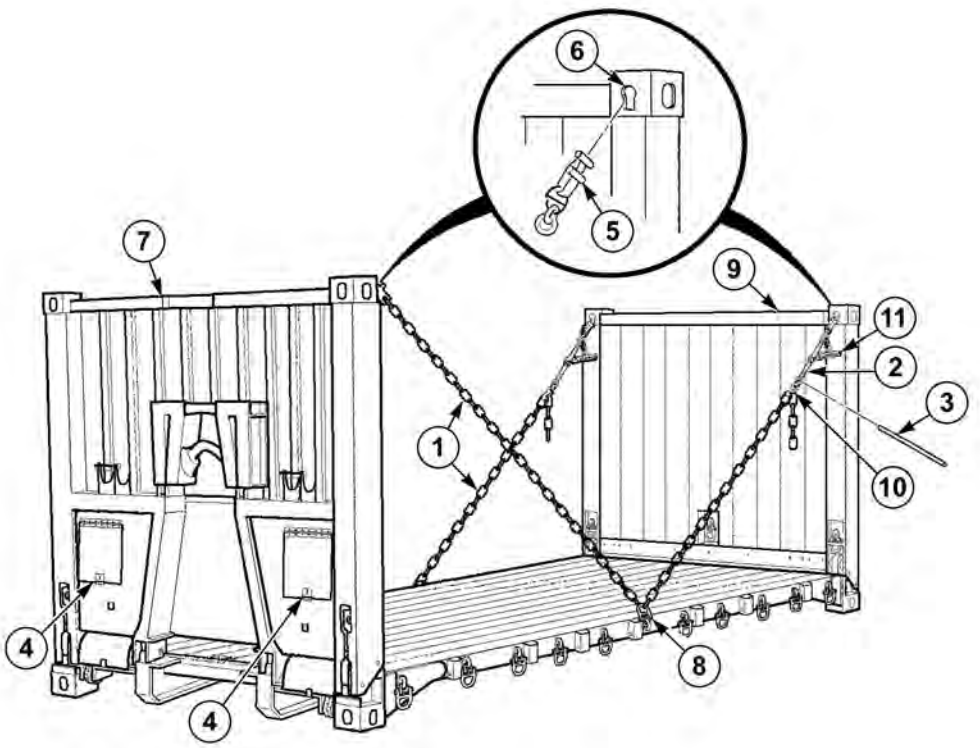


Figure 2.

2. Remove chain (1) from hook (10) of load binder (2).
3. Remove load binder (2) and T-hook (5) from slot (6) on upper corner of rear wall (9).
4. Remove chain (1) and T-hook (5) from slot (6) on upper corner of front wall (7) and middle 25K tiedown ring (8).
5. Repeat Steps (1) through (4) for remaining side.
6. Stow two chains (1), load binders (2) and pry bar (3) in stowage boxes (4).

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
STOWAGE AND SIGN GUIDE

SCOPE

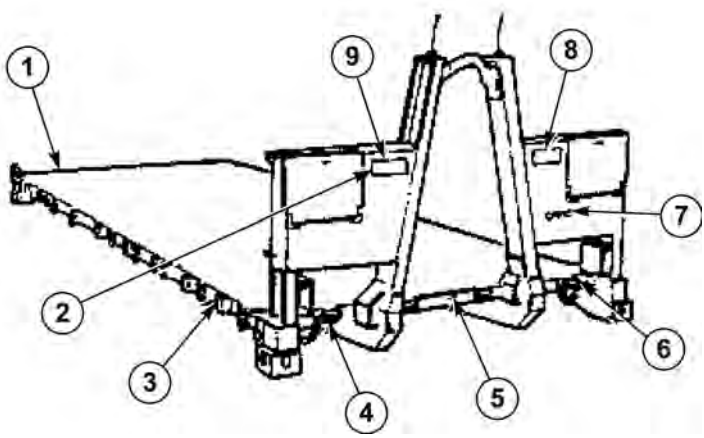
This work package shows locations for data plates, decals, and stencils that are required to be in place on the PLS series vehicles, trailers, and flatracks.

GENERAL

The following figures show the location of metal signs, decals, and stencils used on the vehicle. Most of these and stencils contain cautions of information needed to operate the vehicle safely. For stowage locations of Components Of End Item (COEI) and Basic Issue Items (BII), refer to Components of End Item and Basic Issue Items lists. (WP 0035)

***** The following is applicable to model(s) 077. *****

Table 1.



INDEX	PLACARD/DECAL
1	"LEFT AND RIGHT SIDE" Stencil
2	Metal Stamp with Serial Number and Date of Manufacture
3	Five Pointed Star Stencil

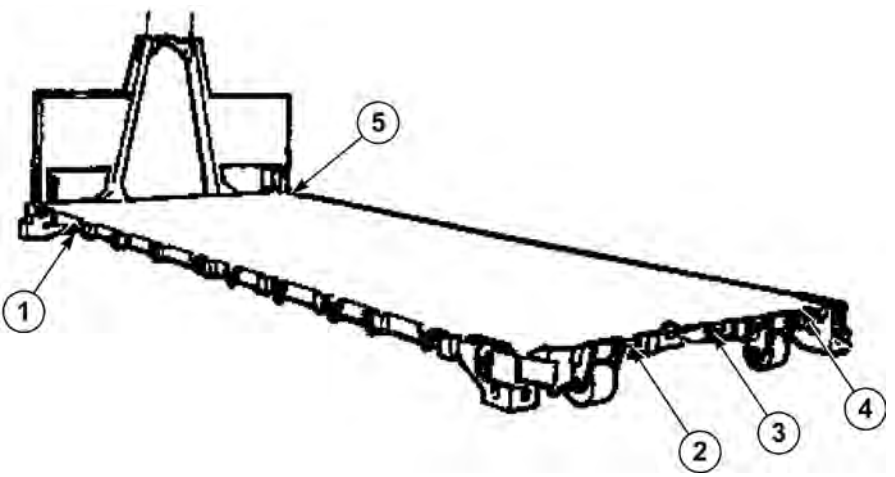
GENERAL - Continued

Table 1. - Continued

4	"TIEDOWN" Stencil
5	Five Pointed Star Stencil
6	"TIEDOWN" Stencil
7	"CARC" Stencil
8	Shipping Data
9	Flatrack Data

***** The following is applicable to model(s) 077. *****

Table 2.



INDEX	PLACARD/DECAL
1	Five Pointed Star Stencil
2	"TIEDOWN" Stencil

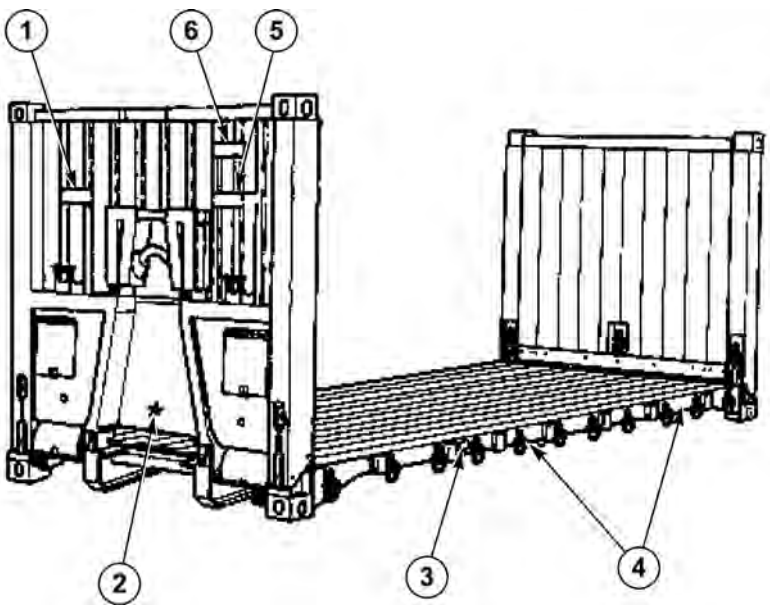
GENERAL - Continued

Table 2. - Continued

3	Five Pointed Star Stencil
4	"TIEDOWN" Stencil
5	"LEFT AND RIGHT SIDE" Stencil

***** The following is applicable to model(s) IPF. *****

Table 3.



INDEX	PLACARD/DECAL
1	Warning Front Wall
2	Five Pointed Star Stencil
3	Warranty Data

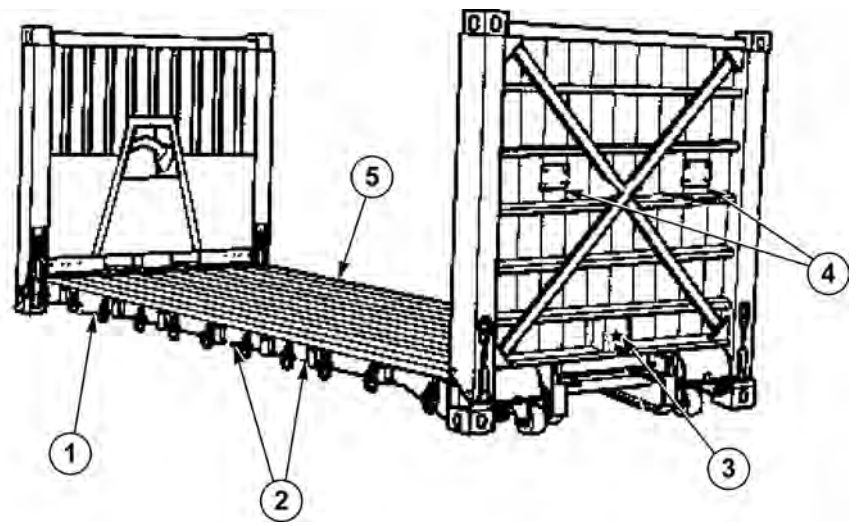
GENERAL - Continued

Table 3. - Continued

4	"LADEN LIFT F POCKET" Stencil (Left and Right Side)
5	Warning Front Wall
6	Shipping Data

***** The following is applicable to model(s) IPF. *****

Table 4.



INDEX	PLACARD/DECAL
1	"CARC" Stencil (Left and Right Side)
2	"LADEN LIFT F POCKET" Stencil (Left and Right Side)
3	Five Pointed Star Stencil
4	Warning Rear Wall

GENERAL - Continued

Table 4. - Continued

5	CSC Safety Data

END OF WORK PACKAGE

CHAPTER 3

TROUBLESHOOTING PROCEDURES

OPERATOR MAINTENANCE
PIN ASSEMBLIES WILL NOT TURN

INITIAL SETUP:

TROUBLESHOOTING PROCEDURE
PIN ASSEMBLIES WILL NOT TURN

TEST 1 - Is the safety catch and collar in proper position?

1. Visually inspect safety catch and collar position.

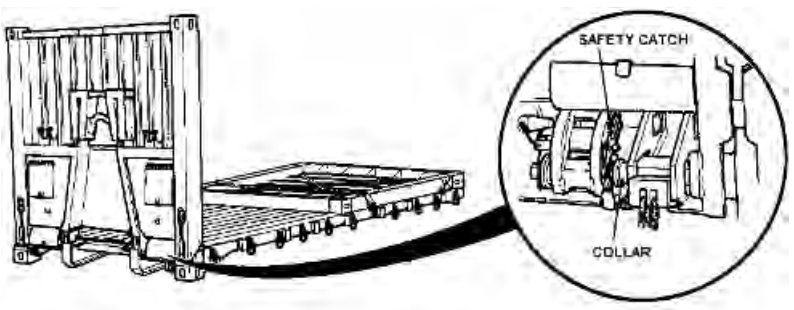


Figure 1.

CONDITION/INDICATION

Is the safety catch and collar in proper position?

DECISION

WRONG - Move safety catch and collar to correct position. Problem corrected.
OK - Notify supervisor.

END OF WORK PACKAGE

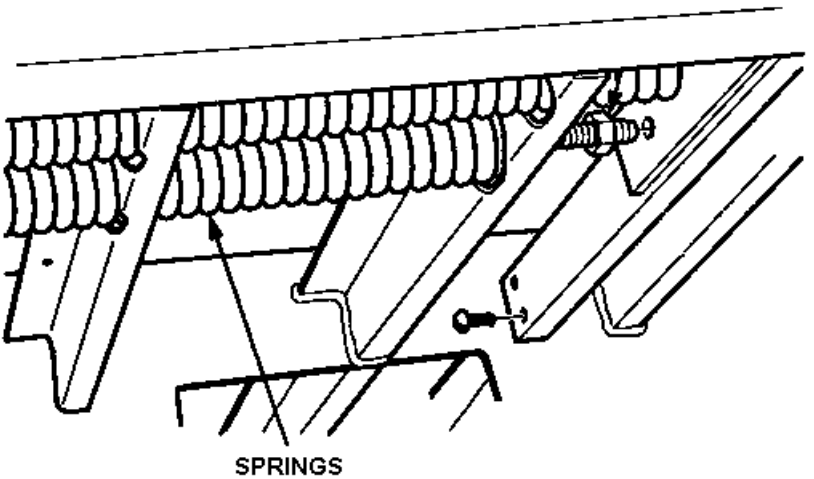
OPERATOR MAINTENANCE
FRONT OR REAR WALL IS DIFFICULT TO LIFT (TOO HEAVY)

INITIAL SETUP:

TROUBLESHOOTING PROCEDURE
FRONT OR REAR WALL IS DIFFICULT TO LIFT (TOO HEAVY)

TEST 1 - Are one or both springs, pulleys, rollers or chains missing or damaged?

1. Visually check for missing or damaged springs, pulleys, rollers or chains.



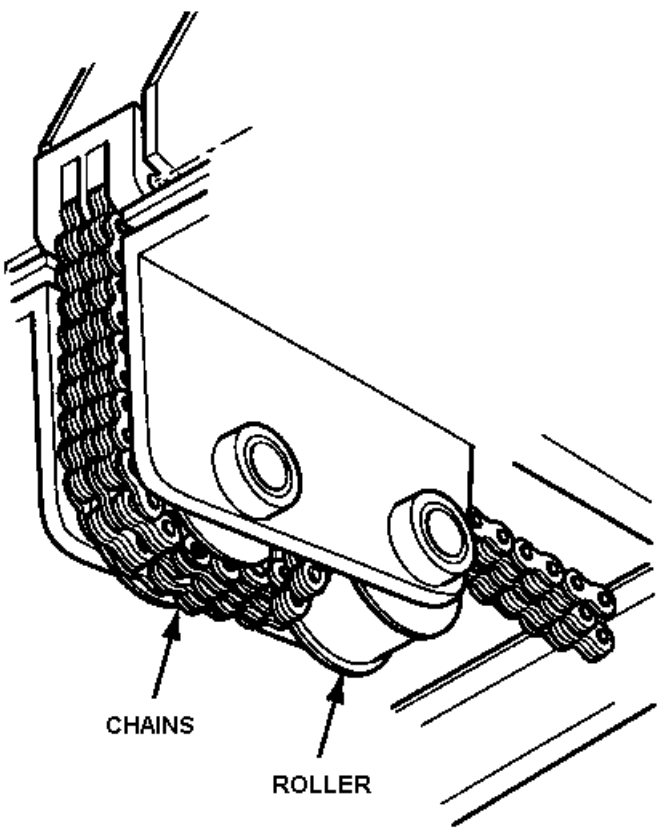


Figure 1.

CONDITION/INDICATION

Are one or both springs, pulleys, rollers or chains missing or damaged?

DECISION

DAMAGED - Contact supervisor.
OK - Contact supervisor.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
FRONT OR REAR WALL LOWERS TOO RAPIDLY

INITIAL SETUP:

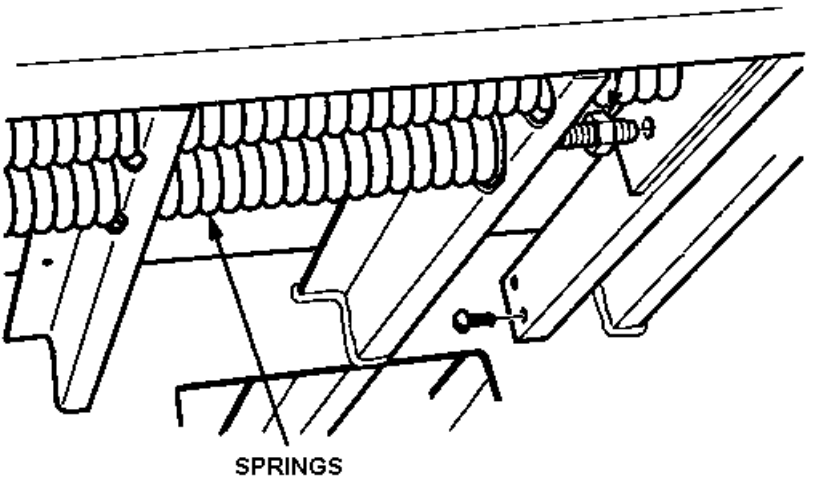
TROUBLESHOOTING PROCEDURE
FRONT OR REAR WALL LOWERS TOO RAPIDLY

TEST 1 - Are springs or chains broken?

WARNING

Ensure all personnel wear protective gloves when handling rear wall floor boards to protect hands from wood splinters. Failure to comply may result in injury or death to personnel.

1. Visually check springs and chains for broken or damaged condition.



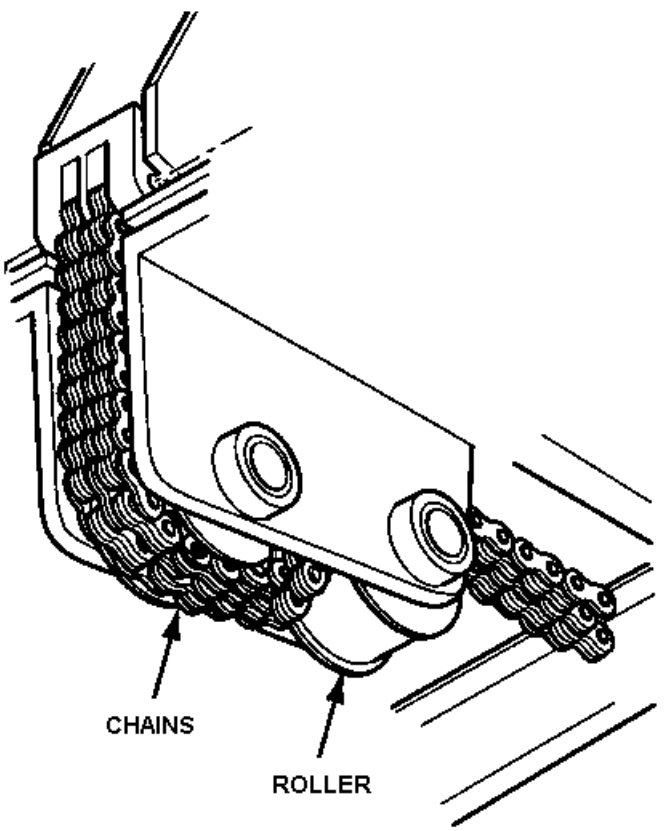


Figure 1.

CONDITION/INDICATION

Are springs or chains broken?

DECISION

DAMAGED - Springs and/or chains damaged, contact supervisor.
OK - Contact supervisor.

END OF WORK PACKAGE

CHAPTER 4

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

OPERATOR MAINTENANCE
INTRODUCTION - OPERATOR'S PREVENTIVE MAINTENANCE

PMCS INTRODUCTION

This section contains Preventive Maintenance Checks and Services (PMCS) requirements for PLS series vehicles, trailers, and flatracks. The PMCS tables contain checks and services necessary to ensure that the vehicle is ready for operation. Using PMCS tables, perform maintenance at specified intervals.

MAINTENANCE FORMS AND RECORDS

Every mission begins and ends with paperwork. There is not much of it, but it must be kept up. The filled-out forms and records have several uses. They are a permanent record of services, repairs, and modifications made on the vehicle; they are reports to field level maintenance and to your Commander; and they serve as a checklist to find out what is wrong with the vehicle after its last use and whether those faults have been fixed. For the information needed on forms and records, refer to DA PAM 750-8 .

PREVENTIVE MAINTENANCE CHECKS AND SERVICES

- Do the before (B) PREVENTIVE MAINTENANCE just before operating vehicle. Pay attention to the CAUTIONS and WARNINGS.
- Do the during (D) PREVENTIVE MAINTENANCE while vehicle and/or its component systems are in operation. Pay attention to the CAUTIONS and WARNINGS.
- Do the after (A) PREVENTIVE MAINTENANCE right after operating vehicle. Pay attention to the CAUTIONS and WARNINGS.
- Do the (W) PREVENTIVE MAINTENANCE weekly. Pay attention to the CAUTIONS and WARNINGS.
- Do the (M) PREVENTIVE MAINTENANCE once a month. Pay attention to the CAUTIONS and WARNINGS.
- If something does not work, troubleshoot and notify the supervisor.
- Always do PREVENTIVE MAINTENANCE in the same order until it gets to be a habit. Once practiced, problems can be spotted in a hurry.
- If something looks wrong and cannot be fixed right then, write it on DA Form 2404 or DA Form 5988E . If something seems seriously wrong, report it to field maintenance RIGHT AWAY.
- When doing PREVENTIVE MAINTENANCE, take along the tools needed and a rag or two to make all the checks.

GENERAL MAINTENANCE PROCEDURE

- **Cleanliness:** Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use solvent cleaning compound (WP 0036, Table 1, Item 44, 45, 46) on all metal surfaces and soapy water on rubber.
- **Bolts, Nuts, and Screws:** Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and tighten or replace as necessary. They cannot all be checked with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads.
- **Welds:** Look for loose or chipped paint, rust, or gaps where parts are welded together. If a bad weld is found, have it repaired.
- **Electric Wires and Connectors:** Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure wires are in good shape.
- **Hydraulic Lines and Fittings:** Look for wear, damage, and leaks and make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a fitting or connector can indicate a leak. If a connector or fitting is loose, tighten it. If something is broken or worn out, repair or replace it per the applicable procedure.
- **Damage is defined as:** Any condition that affects safety or would render the vehicle unserviceable for mission requirements.

FLUID LEAKAGE

It is necessary to know how fluid leakage affects the status of fuel, oil, coolant, and the hydraulic systems. The following are definitions of types/classes of leakage necessary to know in order to determine the status of the vehicle.

NOTE

Equipment operation is allowable with minor leakage (Class I or II). Consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify the supervisor. When operating with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be repaired per applicable procedure.

Class I : Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II: Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

Class III: Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

***** The following is applicable to model(s) 077. *****

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

(Applicable to model(s) 077.) Prior to performing your PMCS, check with your PLL clerk to verify that the latest publications are being used by the operator and organizational unit.

(Applicable to model(s) 077.) Listed below are the PMCS procedures applicable to this equipment.

PMCS - DURING (WP 0030)

PMCS - AFTER (WP 0031)

(Applicable to model(s) 077.) Vehicles designated or dispatched to transport Class A or B ammunition, explosives, poisons, or radioactive yellow III materials over public highways require more stringent inspections.

(Applicable to model(s) 077.) Daily Walk Around PMCS Diagram. This routing diagram will be of help to complete the B, D, or A PMCS. It shows the vehicle PMCS routing track, which matches the sequence of PMCS to be performed.

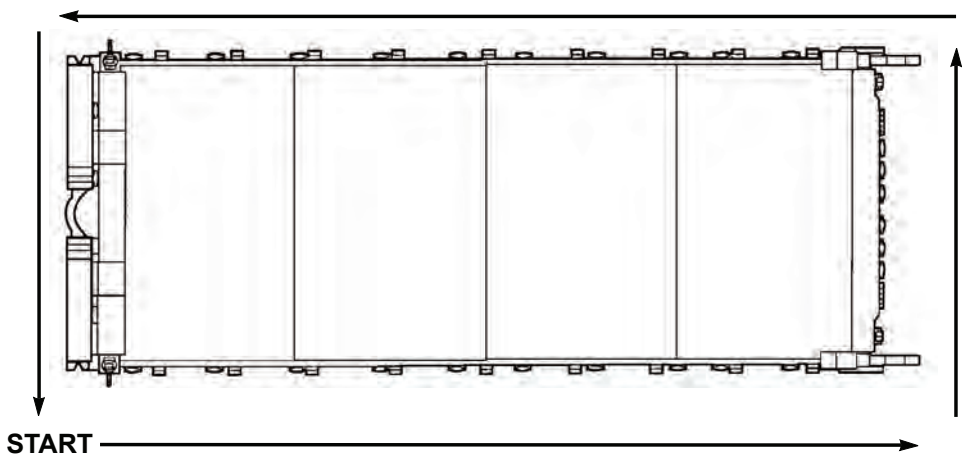


Figure 1.

***** The following is applicable to model(s) IPF. *****

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

(Applicable to model(s) IPF.) Prior to performing your PMCS, check with your PLL clerk to verify that the latest publications are being used by the operator and organizational unit.

(Applicable to model(s) IPF.) Listed below are the PMCS procedures applicable to this equipment.

PMCS - BEFORE (WP 0029)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

PMCS - DURING (WP 0030)

PMCS - AFTER (WP 0031)

(Applicable to model(s) IPF.) Vehicles designated or dispatched to transport Class A or B ammunition, explosives, poisons, or radioactive yellow III materials over public highways require more stringent inspections.

(Applicable to model(s) IPF.) Daily Walk Around PMCS Diagram. This routing diagram will be of help to complete the B, D, or A PMCS. It shows the vehicle PMCS routing track, which matches the sequence of PMCS to be performed.

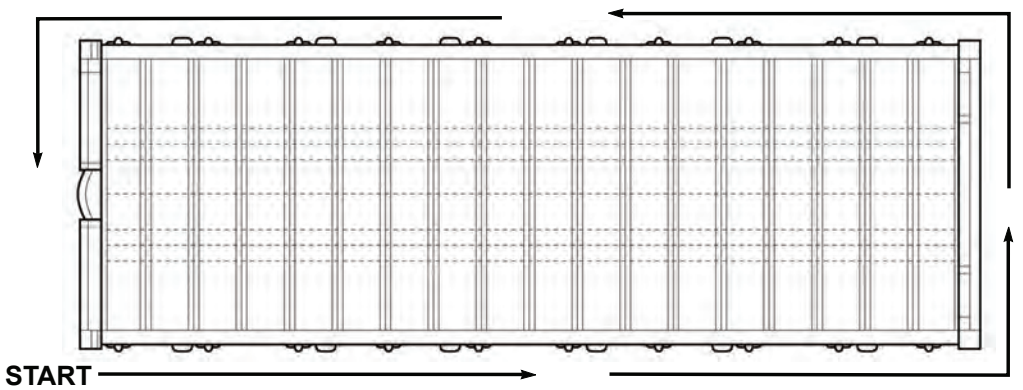


Figure 2.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATOR'S PMCS - BEFORE

INITIAL SETUP:

Not Applicable

Table 1. OPERATOR'S PMCS - BEFORE

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			***** The following is applicable to model(s) IPF. *****	
1	Before	Flatrack	Ensure flatrack (1) has a valid DD Form 2282 (WP 0034) attached in accordance with DOD 4500.9 R. Visually inspect flatrack before loading.	

Table 1. OPERATOR'S PMCS - BEFORE - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

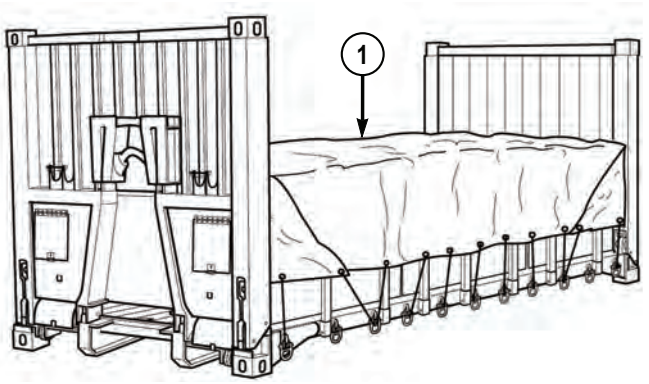


Figure 1.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATOR'S PMCS - DURING

INITIAL SETUP:

Not Applicable

Table 1. OPERATOR'S PMCS - DURING

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	During	Cargo Tarp; Tiedown Straps	***** The following is applicable to model(s) 077. ***** **NOTE** Perform the following whether side board kit, cargo net, and tiedown straps will or will not be used during the next mission. Shortly after starting a mission and after driving over rough terrain, stop driving, get out and ensure cargo tarp (1) or tiedown straps are not damaged. Ensure cargo has not shifted. Tighten straps if required.	Tiedown straps are damaged and allow cargo to move. Insufficient straps to

Table 1. OPERATOR'S PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				complete the mission.

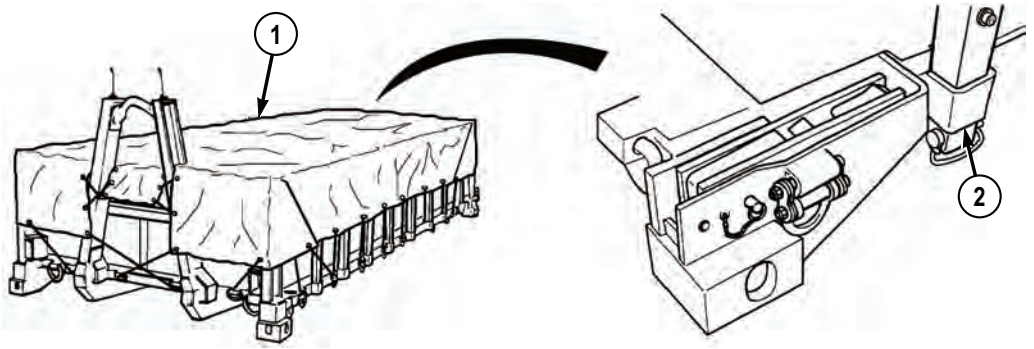


Figure 1.

			***** The following is applicable to model(s) IPF. ***** **NOTE** Perform the following whether side board kit, cargo tarp, and tiedown straps will or will not be used during the next mission.	
2	During	Cargo Tarp; Tiedown Straps (If Equipped)		

Table 1. OPERATOR'S PMCS - DURING - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			Shortly after starting a mission and after driving over rough terrain, stop driving, get out and ensure cargo tarp (1) or cargo tiedown straps are not damaged. Ensure cargo has not shifted. Tighten straps if required.	Tiedown straps are damaged and allow cargo to move. Insufficient straps to complete the mission.

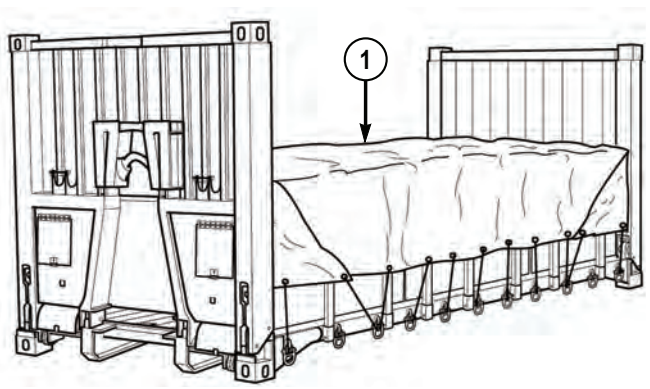


Figure 2.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATOR'S PMCS - AFTER

INITIAL SETUP:

Not Applicable

Table 1. OPERATOR'S PMCS - AFTER

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
1	After	Side Board Pockets	***** The following is applicable to model(s) 077. ***** **NOTE** Perform the following whether side board kit, cargo net, and tiedown straps will or will not be used during the next mission. Visually inspect pockets (1) for corrosion, dirt, oil, and damage. Clean equipment as required.	Not all side boards can be installed in pockets.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

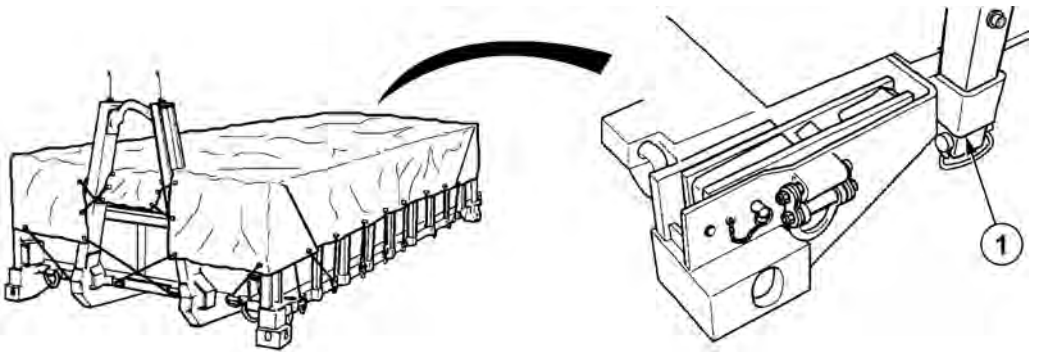


Figure 1.

			***** The following is applicable to model(s) 077. *****	
2	After	Side Boards (If Equipped)	Ensure that all side boards (1) properly fit in pockets (2).	Not all side boards can be installed in pockets.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			***** The following is applicable to model(s) 077. *****	
3	After	Side Board Retaining Clips	Ensure all side board clips (3) are not damaged or missing.	
			***** The following is applicable to model(s) 077. *****	
4	After	Two Rear ISO Locks	a. Remove pin (1) from extension (2) and rotate extension upward.	

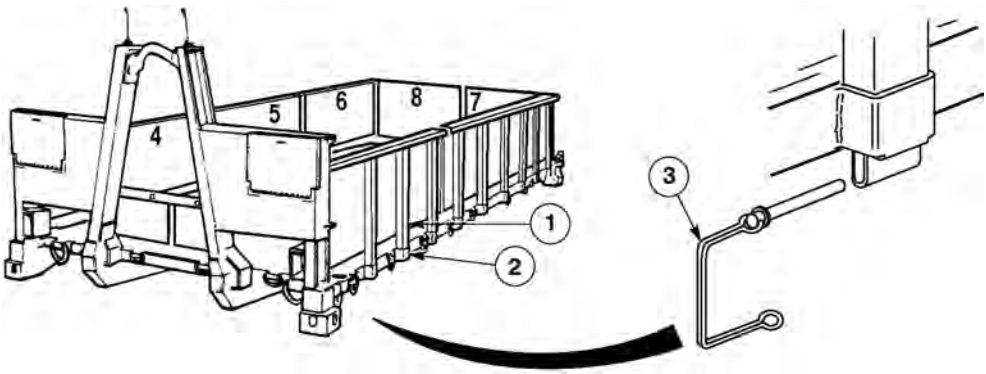


Figure 2.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

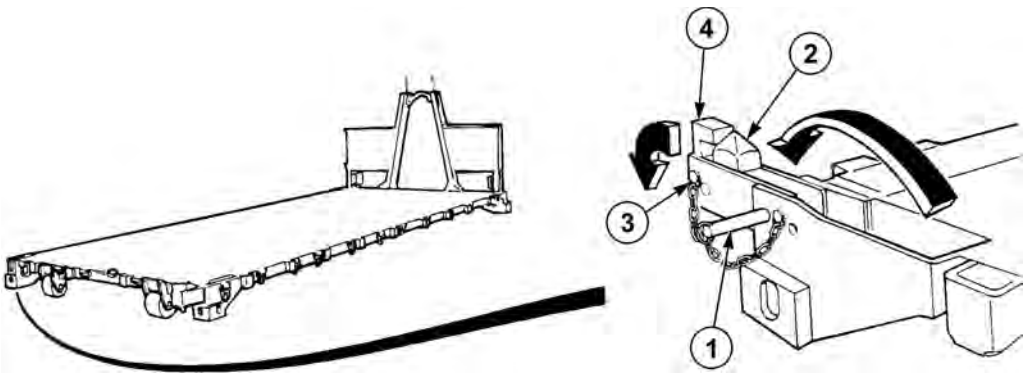


Figure 3.

			b. Fix extension (2) in position by installing pin (1). c. Pull pin (3) from lock (4). Rotate lock up to locked position (as shown) and install pin in lock. d. Pull pin (3) from lock (4) and rotate lock to the stowed position and install pin in lock. e. Pull pin (1) from extension (2) and rotate extension to the stowed position. Install pin in extension. ***** The following is applicable to model(s) 077. *****	Pin or lock damaged or extension will not rotate.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
5	After	Two Rollers	**WARNING** Roller must be supported while removing retaining pins or roller may drop. Failure to comply may result in injury or death to personnel. a. Hold roller (1) in place. Remove holding pin (2) from each retaining pin (3). Lift on ring (4) and pull retaining pin (3) out far enough to ensure it is removable, then push retaining pin (3) back in. Repeat step for other retaining pin (3). b. Ensure that roller (1) will rotate. c. Ensure roll pins (5) are not damaged.	Neither roller functions correctly.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

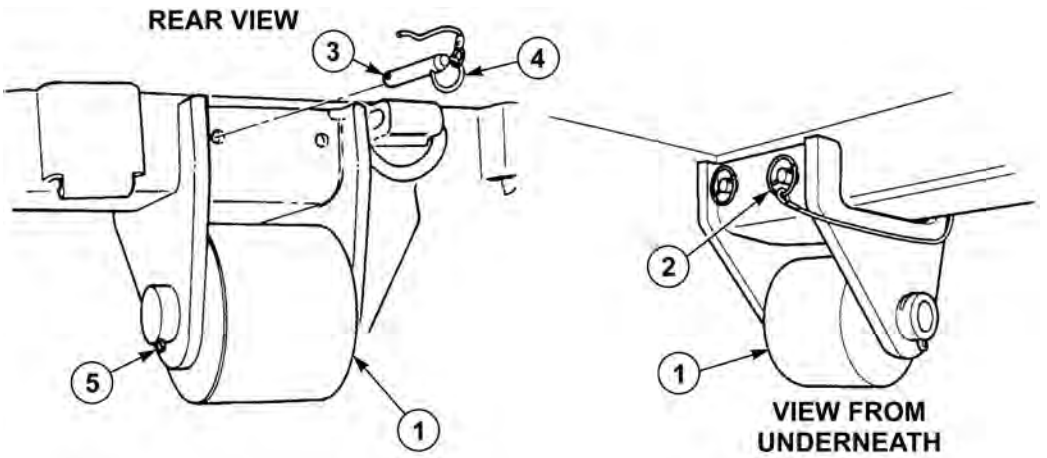


Figure 4.

			***** The following is applicable to model(s) 077. *****
6	After	Front ISO Locks	a. Lift handle (1) on locking body (2) and rotate CCW to lift locking body.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

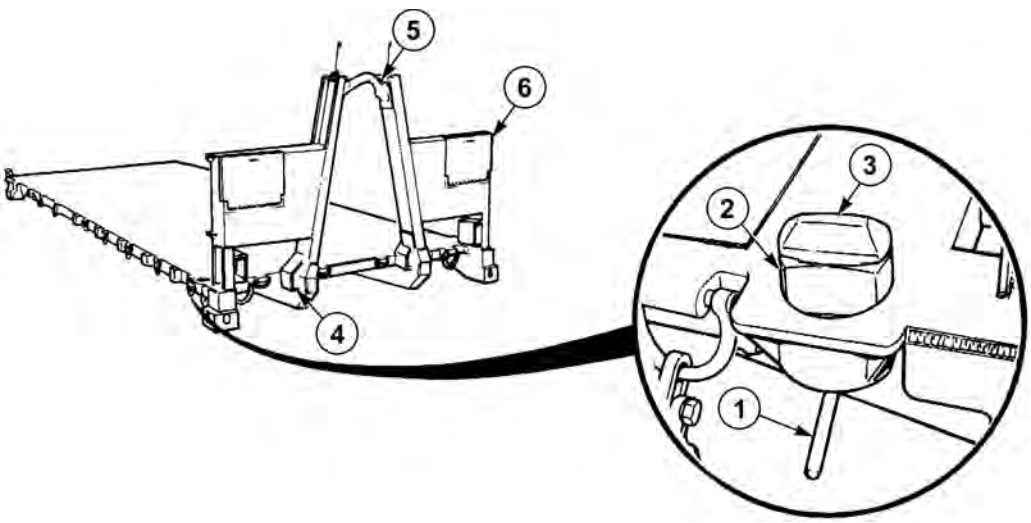


Figure 5.

			b. Twist handle 1/4 of a turn more so that top (3) of lock will be in position to engage ISO container. c. Return locking body (2) to original position. ***** The following is applicable to model(s) 077. *****	 Lock cannot engage ISO container.
7	After	Flatrack Rails	Ensure ends of rails (4) are undamaged and clean.	One or both rails are damaged and will not

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				fit on vehicle or trailer.
			WARNING Hook bar may have metal slivers or sharp edges. Wear gloves if handling. Failure to comply may result in injury or death to personnel.	
			***** The following is applicable to model(s) 077. *****	
8	After	Hook Bar	Check hook bar (5) for cracks and bent bar.	Hook bar has cracks or is bent.
			***** The following is applicable to model(s) 077. *****	
9	After	Storage Boxes	Ensure door (6), hinges, lynch pins, and fasteners are not damaged.	
			***** The following is applicable to model(s) 077. *****	
			NOTE Inspect tiedown and sling rings at the same time that	

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			you inspect the cargo net if side boards are installed.	
10	After	Tiedown Rings and Sling Rings	Ensure all tiedown rings (1) and sling rings (2) can be moved up and down and are not damaged.	

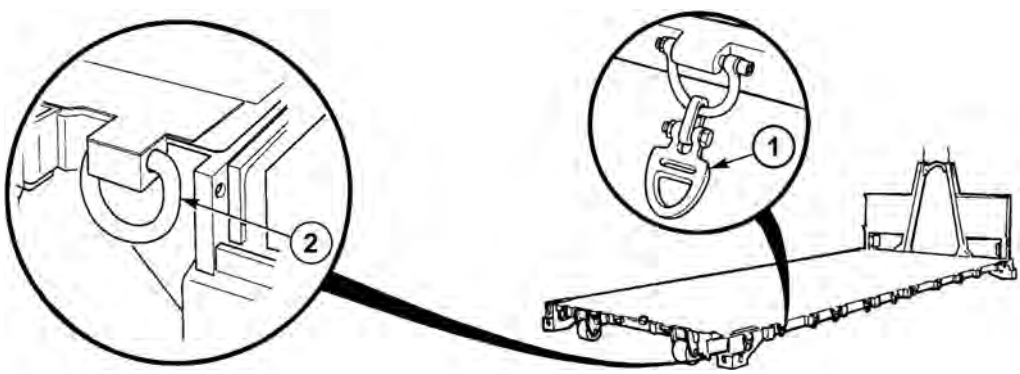


Figure 6.

			***** The following is applicable to model(s) 077. *****	
11	After	Cargo Net	Ensure cargo net snap hooks (1) and tiedown rings (2) are not damaged.	

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

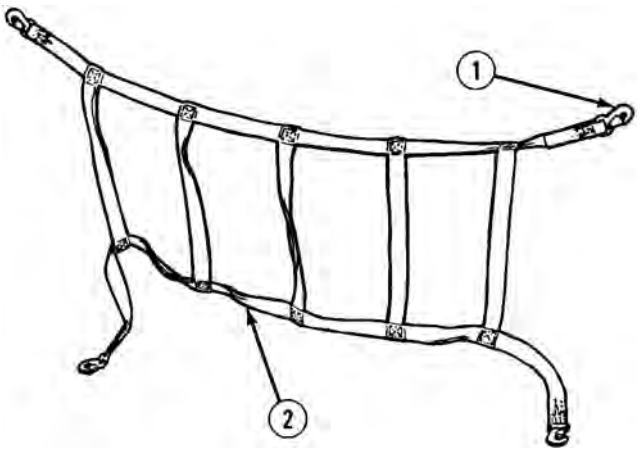


Figure 7.

			***** The following is applicable to model(s) IPF. ***** **NOTE** Perform the following whether side board kit, cargo tarp, and tiedown straps will or will not be used during the next mission.	
12	After	Side Board Pockets	Visually inspect pockets (1) for corrosion, dirt, oil, and damage. Clean equipment as required.	

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

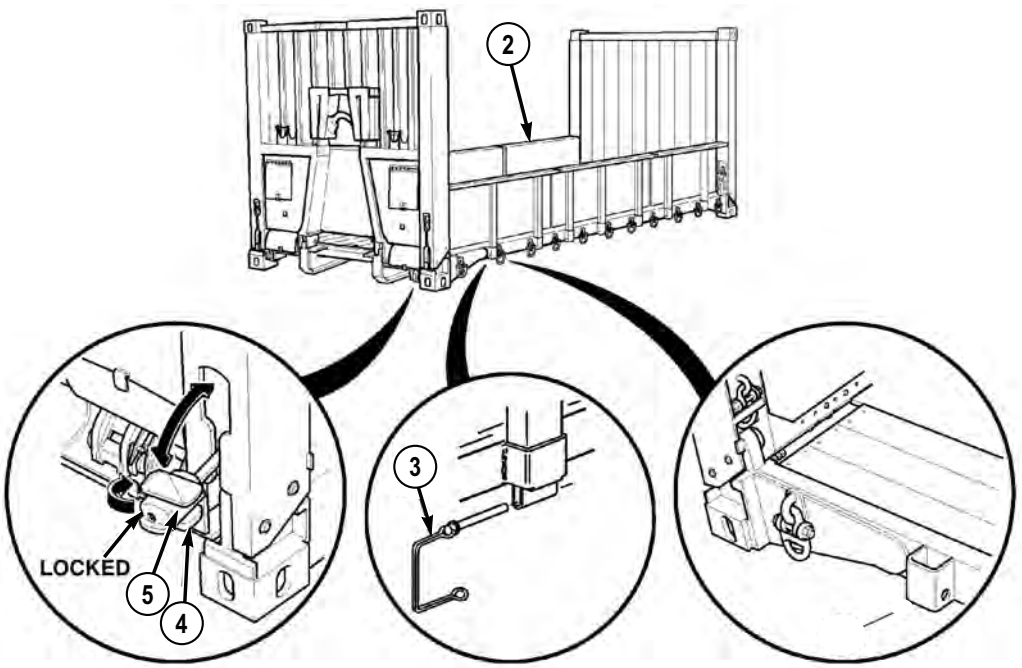


Figure 8.

			***** The following is applicable to model(s) IPF. *****	
13	After	Sideboards (If Equipped)	Ensure that all side boards (2) properly fit in pockets. ***** The following is applicable to model(s) IPF. *****	Not all side-boards can be installed in pockets.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
14	After	Sideboard Retaining Clips	Ensure that all sideboard retaining clips (3) are not damaged or missing. ***** The following is applicable to model(s) IPF. ***** **NOTE** Sliding handle may be used from Basic Issue Items (BII) to rotate twist lock.	
15	After	Twist Locks	a. Rotate locking handle (4) 90 degrees in either direction. b. Rotate twist lock (5) backwards from stowage position. c. Inspect twist lock (5) for damage or corrosion. d. Rotate twist lock (5) into stowage position. e. Rotate locking handle (4) 90 degrees to lock twist lock into stowage position. ***** The following is applicable to model(s) IPF. *****	Either twist lock damaged or will not rotate.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
16	After	Two Rollers	**WARNING** Roller must be supported while removing retaining pins or roller may drop. Failure to comply may result in injury or death to personnel. **NOTE** Flatrack must be on vehicle prior to performing the following step. a. Hold roller (1) in place. Remove two safety pins (2) from retaining pins (3). Lift roller (1) out far enough to ensure it is removable, then push roller (1) back in and install safety pins (2). Perform same with other roller. b. Ensure that roller (1) will rotate.	Either roller does not function correctly.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

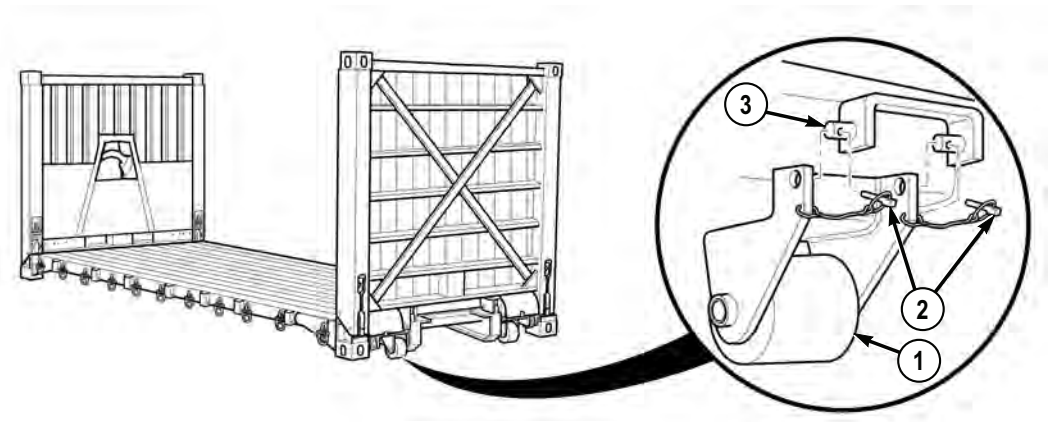


Figure 9.

			***** The following is applicable to model(s) IPF. *****	
17	After	Wooden Flooring	Inspect wooden flooring (1) on flatrack floor and rear wall for missing or damaged boards.	Any boards are missing or broken.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

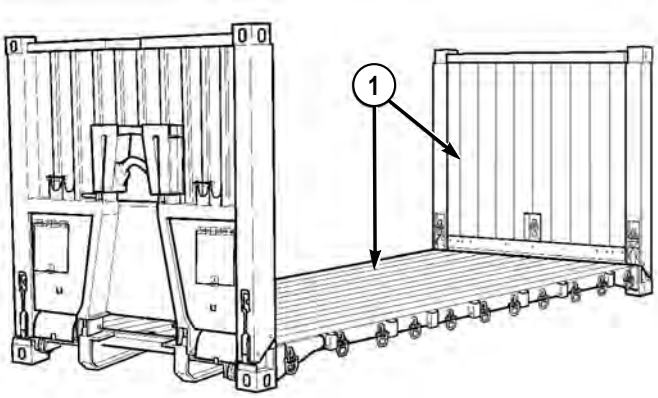


Figure 10.

18	After	Twist Locks	***** The following is applicable to model(s) IPF. ***** **NOTE** Sliding handle may be used from Basic Issue Items (BII) to rotate twist lock. a. Rotate locking handle (1) 90 degrees in either direction. b. Rotate twist lock (2) backwards from stowage position.	

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			c. Inspect twist lock (2) for damage or corrosion. d. Rotate twist lock (2) into stowage position. e. Rotate locking handle (1) 90 degrees to lock twist lock (2) into stowage position.	Either twist lock (2) damaged or will not rotate.

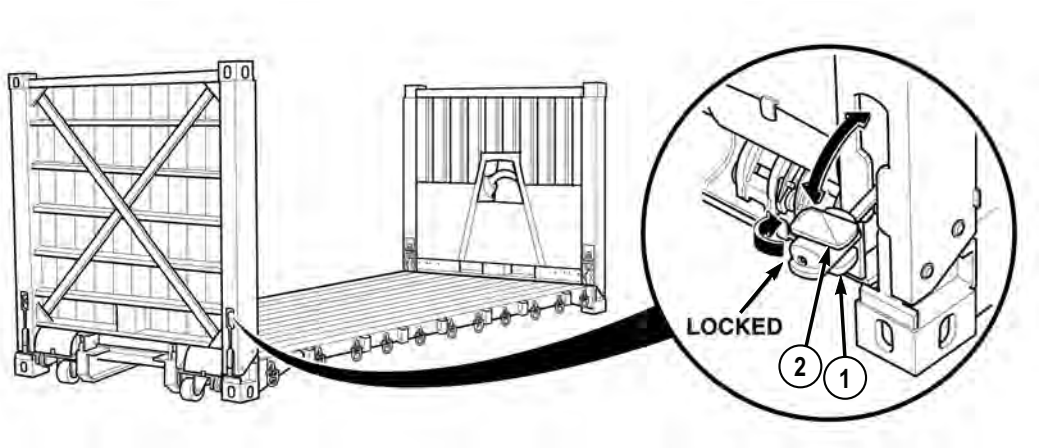


Figure 11.

			***** The following is applicable to model(s) IPF. *****

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			WARNING Front wall weighs 1,500 lbs (680 kg). Rear wall weighs 1,200 lbs (544 kg). The flatrack is equipped with spring-loaded counterbalance mechanisms that allow the wall to be lowered by two soldiers. Raising and lowering operations must be conducted on level ground. Do not stand under walls when raising or lowering. Use an assistant when raising or lowering the rear wall. Failure to comply may result in injury or death to personnel.	
19	After	Rear Wall Hinges	Inspect rear wall hinges (1) for damage or corrosion.	Any hinge is cracked or has damage that would impair operation.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

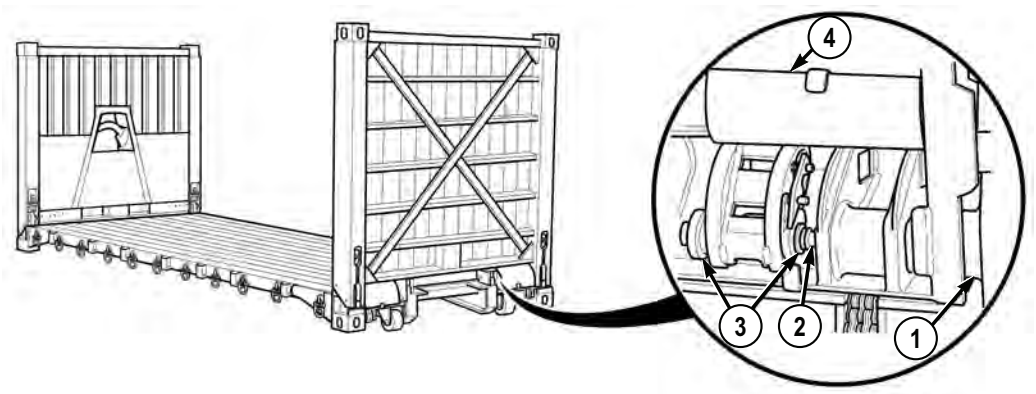


Figure 12.

			***** The following is applicable to model(s) IPF. *****	
20	After	Rear Wall Hinge Pins	Inspect for missing or damaged hinge pins (2).	Any pin is cracked or missing or has damage that would impair operation.
			***** The following is applicable to model(s) IPF. *****	
21	After	Pin Assemblies	Inspect pin assemblies (3) for damage or corrosion. If pin assemblies are corroded or do not operate freely, notify Field Maintenance.	Any pin assembly is missing or has damage that

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
				would impair operation.
			***** The following is applicable to model(s) IPF. *****	
22	After	Mud Flaps	Inspect for missing or damaged mud flaps (4). ***** The following is applicable to model(s) IPF. ***** **WARNING** Front wall weighs 1,500 lbs (680 kg). Rear wall weighs 1,200 lbs (544 kg). The flatrack is equipped with spring-loaded counterbalance mechanisms that allow the wall to be lowered by two soldiers. Raising and lowering operations must be conducted on level ground. Do not stand under walls when raising or lowering. Use an assistant when raising or lowering the rear wall. Failure to comply may result in injury or death to personnel.	

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
23	After	Front Wall Hinges	Inspect front wall hinges (1) for damage or corrosion.	Any hinge is cracked or has damage that would impair operation.

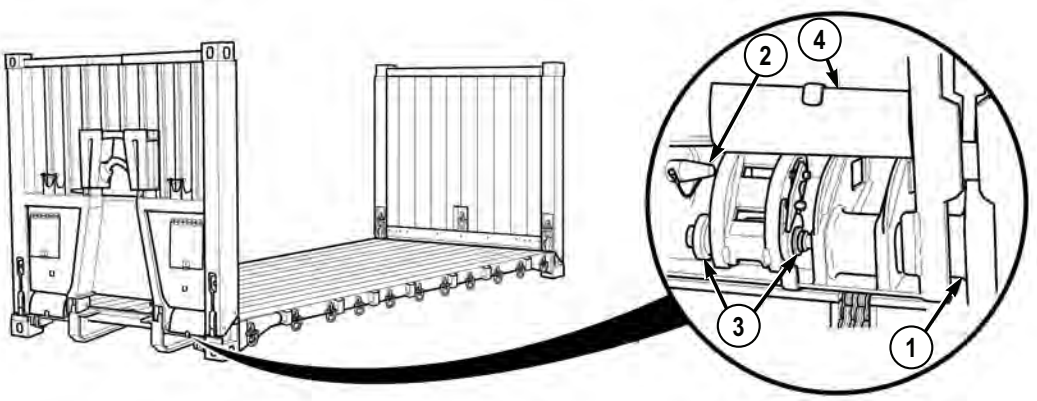


Figure 13.

			***** The following is applicable to model(s) IPF. *****	
24	After	Front Wall	Inspect for missing or damaged hinge pins (2).	Any pin is cracked or pins miss-

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
		Hinge Pins		ing or has damage that would impair operation.
			***** The following is applicable to model(s) lPF. *****	
25	After	Pin Assemblies	Inspect pin assemblies (3) for damage or corrosion. If pin assemblies are corroded or do not operate freely, notify Field Maintenance.	Any pin assembly is missing or has damage that would impair operation.
			***** The following is applicable to model(s) lPF. *****	
26	After	Mud Flaps	Inspect for missing or damaged mud flaps (4).	
			***** The following is applicable to model(s) lPF. *****	
27	After	Flatrack Rails	Ensure both ends of rails (1) are undamaged and clean.	One or both rails are damaged and will not fit on vehicle or trailer.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:

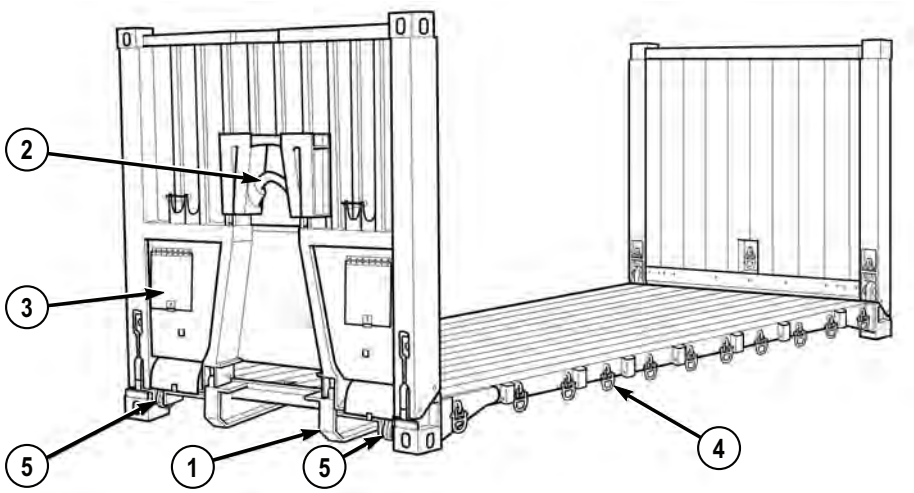


Figure 14.

			***** The following is applicable to model(s) IPF. ***** **NOTE** Hook bar may have metal slivers or sharp edges. Wear gloves if handling or injury to personnel could result.	
28	After	Hook Bar	Check hook bar (2) for cracks or bent bar.	Hook bar has cracks or is bent.

Table 1. OPERATOR'S PMCS - AFTER - Continued

Item No.	Interval	Item to be Checked or Serviced	Procedure	Equipment Not Ready/ Available If:
			***** The following is applicable to model(s) IPF. *****	
29	After	Ratchet Straps	Check quantity and condition of ratchet straps. Twenty-two ratchet straps are located in stowage boxes.	Missing or damaged ratchet straps.
			***** The following is applicable to model(s) IPF. *****	
30	After	Stowage Boxes	Ensure door (3), hinges and fasteners are not damaged.	
			***** The following is applicable to model(s) IPF. *****	
31	After	Tiedown Rings	Ensure all tiedown rings (4) can be moved up and down and are not damaged.	
			***** The following is applicable to model(s) IPF. *****	
32	After	Rollers, Pulleys, and Chains	Ensure rollers, pulleys (5), and chains are not damaged.	Rollers, pulleys, or chains have damage that would impair operation.

END OF WORK PACKAGE

CHAPTER 5

MAINTENANCE INSTRUCTIONS

OPERATOR MAINTENANCE
ROLLER REPLACEMENT

INITIAL SETUP:

Equipment Condition
Flatrack loaded on vehicle or trailer.

REMOVAL

WARNING

Roller must be supported while removing retaining pins or roller may drop. Failure to comply may result in injury or death to personnel.

NOTE

This procedure shows replacement of one roller. Replacement is the same for both rollers.

1. Remove two holding pins (1) from retaining pins (2).

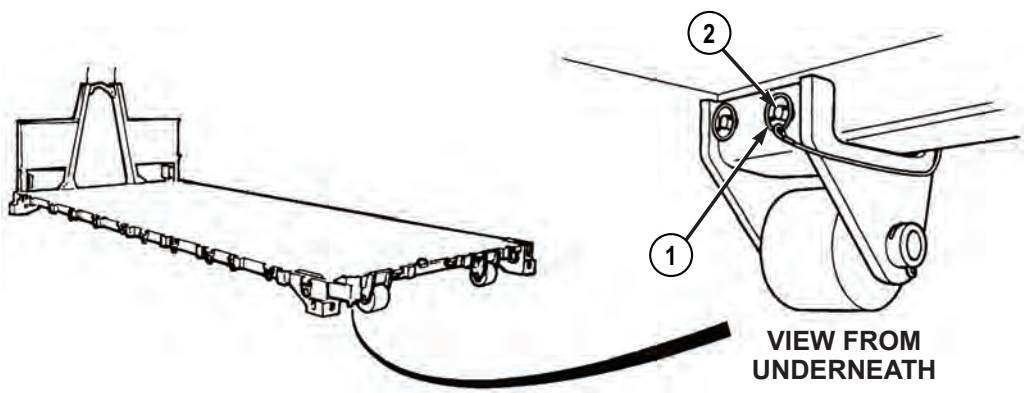


Figure 1.

2. Support roller (3) and remove two retaining pins (2).

REMOVAL - Continued

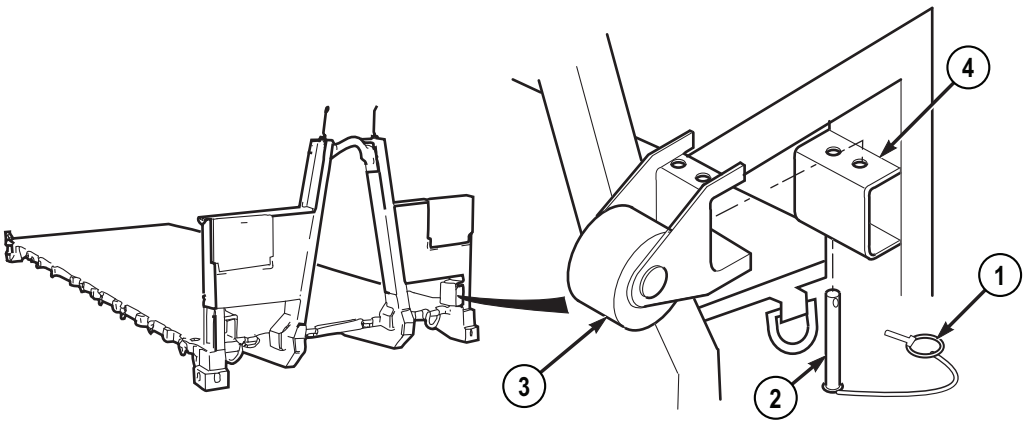


Figure 2.

3. Remove roller (3) from flatrack.
4. Position roller (3) on roller stowage bracket (4) and install two retaining pins (2).
5. Install two holding pins (1) in retaining pins (2).

END OF TASK

INSTALLATION

1. Remove two holding pins (1) from retaining pins (2).

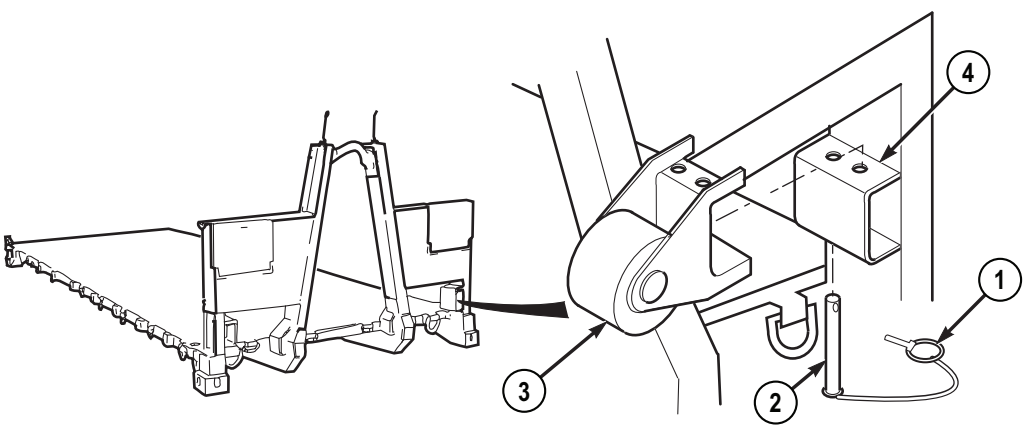


Figure 3.

INSTALLATION - Continued

2. Support roller (3) and remove two retaining pins (2) and roller (3) from roller stowage bracket (4).
3. Install roller (3) on flatrack using two retaining pins (2).
4. Install two holding pins (1) in retaining pins (2).

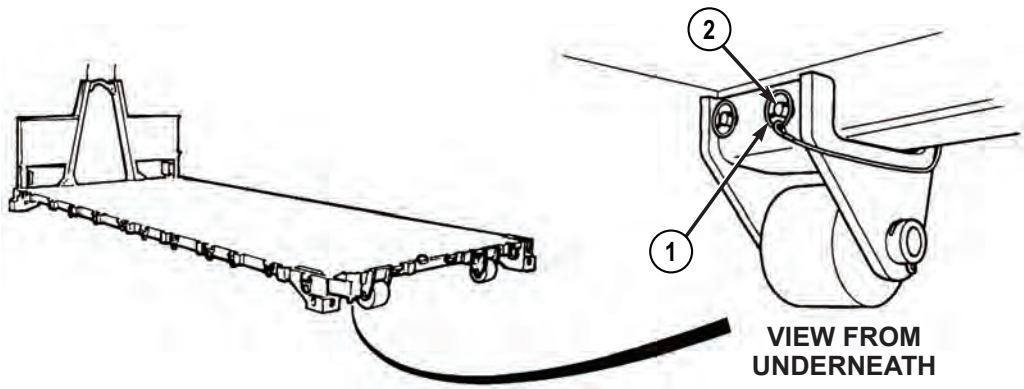


Figure 4.

END OF TASK

FOLLOW-ON MAINTENANCE

Unload flatrack.

END OF WORK PACKAGE

OPERATOR MAINTENANCE
ROLLER REPLACEMENT

INITIAL SETUP:

Equipment Condition
Flatrack loaded on vehicle or trailer.

Removal

WARNING

Support roller while removing lynch pins or roller may drop. Failure to comply may result in injury or death to personnel.

NOTE

- This procedure shows replacement of one roller. Replacement is the same for both rollers.
- Left side shown.

1. Support roller (1) and remove two lynch pins (2) from bracket and pin assembly (3).

Removal - Continued

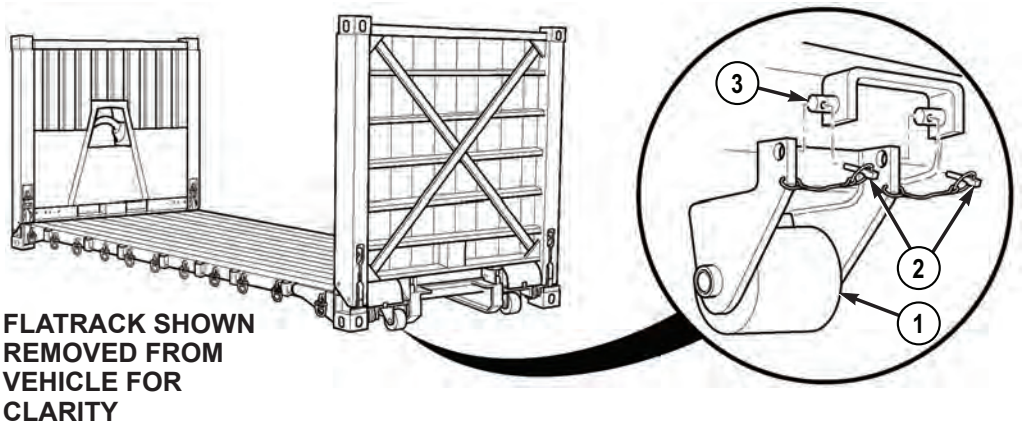


Figure 1.

2. Support roller (1) and remove roller from bracket and pin assembly (3).
3. Remove lynch pin (4) and pin (5) from roller storage bracket (6).

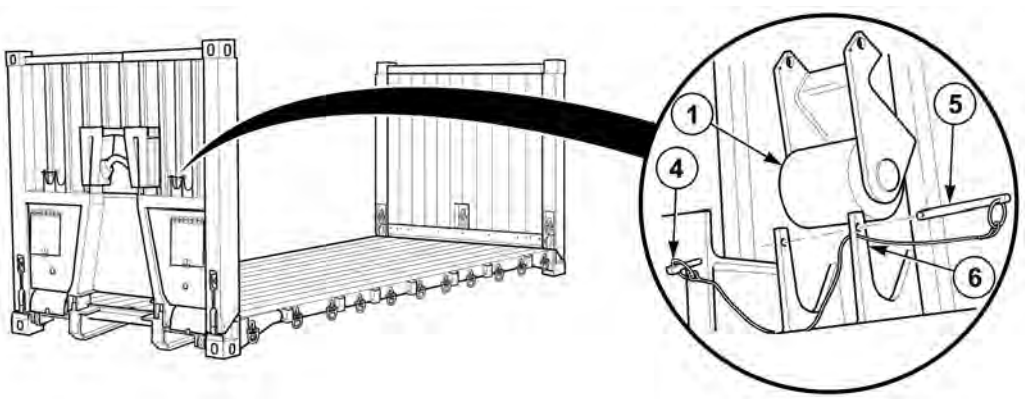


Figure 2.

4. Position roller (1) in roller storage bracket (6).
5. Install pin (5) and lynch pin (4) in roller storage bracket (6).

END OF TASK

Installation

1. Remove lynch pin (4) and pin (5) from roller storage bracket (6).

Installation - Continued

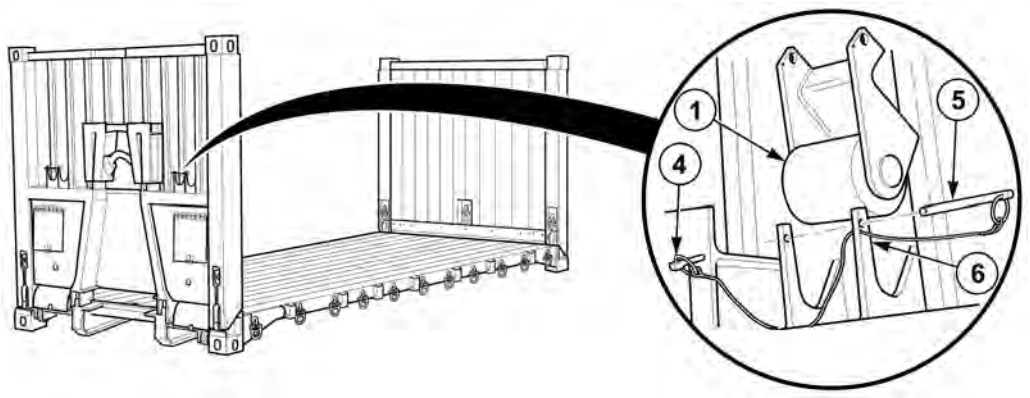


Figure 3.

2. Remove roller (1) from roller storage bracket (6).
3. Install pin (5) and lynch pin (4) in roller storage bracket (6).

NOTE

- There is a right side and left side roller. Left side is shown.
- Ensure roller pin collar faces towards outside edge of flatrack.

4. Position roller (1) on bracket and pin assembly (3).

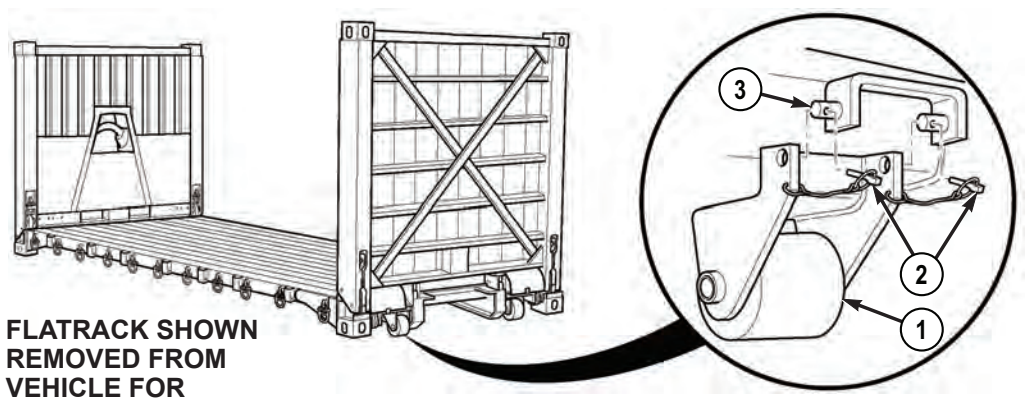


Figure 4.

Installation - Continued

5. Support roller (1) and install two lynch pins (2) in bracket and pin assembly (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Unload flatrack.

END OF WORK PACKAGE

CHAPTER 6

SUPPORTING INFORMATION

FIELD MAINTENANCE REFERENCES

SCOPE

This work package lists all the pamphlets, forms, field manuals, technical manuals, and other publications referred to in this manual. Also, those publications that should be consulted for additional information about vehicle operations are listed.

DEPARTMENT OF ARMY PAMPHLETS

The following indexes should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

	MILITARY PUBLICATION INDEXES
DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual
DA PAM 25-33	User's Guide for Army Publications and Forms
DA PAM 710-2-1	Using Unit Supply System (Manual Procedures)

FORMS

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2407	Maintenance Request
DA Form 2408-9	Equipment Control Record
DD Form 314	Preventive Maintenance Schedule and Record
DD Form 1397	Processing and Deprocessing Record for Shipment, Storage, and Issue of Vehicles and Spare Engines
DD Form 2282	Reinspection Decal Convention For Safe Containers
SF 368	Quality Deficiency Report
DA Form 5988-E	Equipment Inspection/Maintenance Worksheet (EGA)
SF 364	Supply Discrepancy Report
DA FORM 2062	Hand Receipt/Annex Number
DD FORM 250	Material Inspection and Receiving Report
DD FORM 1149	Requisition and Invoice/Shipping Document

FORMS - Continued

DD FORM 1348-1	DOD Single Line Item Release/Receipt Document
DA FORM 2407-1	Maintenance Request Continuation Sheet
DA FORM 2402	Maintenance Tag
STANDARD FORM 4895	Equipment Preservation Data Sheet (EPDS)

FIELD MANUALS

FM 31-70	Basic Cold Weather Manual
FM 90-3	Desert Operations
FM 4-25.11	First Aid
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather
FM 21-305	Manual for Wheeled Vehicle Driver
FM 4-30.31	Recovery and Battle Damage Assessment and Repair
FM 31-71	Northern Operations
FM 20-3	Camouflage, Concealment, and Decoys
FM 3-11.5	Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological and Nuclear Decontamination
FM 55-30	Army Motor Transport Units and Operations
FM 3-11.3	Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological and Nuclear Decontamination Avoidance
FM 3-11.4	Multiservice Tactics, Techniques, and Procedures For Nuclear, Biological, and Chemical (NBC) Protection {MCWP 3-37.2; NTTP 3-11.27; AFTTP (I) 3-2.46} (This Item is included on EM 0205)
FM 21-10	Field Hygiene and Sanitation

TECHNICAL MANUALS

TM 3-4230-214-12&P	Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List for Decontaminating Apparatus
TM 3-6665-225-12	Operator's and Organizational Maintenance Manual: for Alarm, Chemical Agent
TM 9-1005-245-13&P	Machine Gun Mount
TM 9-2330-385-14	Operator's, Unit, Direct Support and General Support Maintenance Manual for Palletized Load System Trailer (PLST) Model M1076 (NSN 2330-01-303-5197)

TECHNICAL MANUALS - Continued

TM 3-4240-280-10	Operator's Manual for Mask, Chemical-Biological: Aircraft, ABC-M24 and Accessories and Mask, Chemical-Biological, Tank, M25A1 and Accessories (Reprinted W/Basic Incl C1-2) (This item is included on EM 0045)
TM 9-3990-206-14&P	Operator's, Unit, Direct Support and General Support Maintenance Manual (Including RPSTL) for the PLS Flatrack
TM 750-244-6	Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-Automotive Command)
TM 11-5820-498-12	Operator's and Organizational Maintenance Manual: Radio Sets
TM 9-6140-200-14	Operator's, Unit, Direct Support and General Support Maintenance Manual for Lead-Acid Storage Batteries
TM 9-4940-568-10	Operator's Manual for Forward Repair System (FRS)
TM 9-3990-260-14&P	Operator's, Unit, Direct Support and General Support Maintenance Manual (Including RPSTL) for CROP
TM 9-2320-364-10	Operator's Manual Truck, Tractor, M1074 and M1075 Palletized Load System (PLS)
TM 43-0139	Painting Instructions for Army Materiel
TM 9-2610-200-14	Operator's, Unit, Direct Support, and General Support Maintenance Manual for Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes
TM 9-214	Inspection, Care and Maintenance of Antifriction Bearings
TM 43-0158	General Shop Practice Requirements for Repair, Maintenance, and Test of Electronic Equipment
TM 9-4910-571-12&P	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Simplified Test Equipment for Internal Combustion Engines (STE/ICE-R)
TM 9-2320-364-10-HR	Hand Receipt for Truck, PLS
TM 750-254	Cooling System: Tactical Vehicles
TM 9-2320-319-10-HR	Hand Receipt for Truck, PLSA1
TM 9-2320-319-10	Operator's Manual Truck, Tractor, M1074A1 and M1075A1 Palletized Load System (PLS)

MISCELLANEOUS PUBLICATIONS

TB 43-0209	Color, Marking, and Camouflage Painting of Military Vehicles
TB 9-2300-281-35	Standard for Overseas Shipment or Domestic Issue of Special Purpose Vehicles
TB 43-0142	Safety Inspection and Testing of Lifting Devices
TB 750-651	Use of Antifreeze Multi-Engine Type Cleaning Compounds and Test Kit in Engine Cooling System

MISCELLANEOUS PUBLICATIONS - Continued

TB 9-2320-364-15	Warranty Program for Palletized Load System (PLS) M1074 (NSN 2320-01-304-2277) M1075 (NSN 2320-01-304-2278) M1076 (NSN 2330-01-303-5197) M1077 (NSN 2320-01-307-7676)
AR 70-1	Army Acquisition Policy
CTA 8-100	Army Medical Department Expendable/Durable Items
CTA 50-970	Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Item)
TC 9-237	Operators' Circular for Welding Theory and Application
AR 725-50	Requisition, Receipt, and Issue System
AR 746-2	Combat Vehicle Marking System
AR 750-1	Army Material Maintenance Policy and Retail Maintenance Operations
MIL-HDBK-138	Container Inspection Handbook for Commercial and Military Intermodal Containers
SF 368	Product Quality Deficiency Report
AR 750-10	Army Modification Program
TB 9-2300-422-20	Security of Tactical Wheeled Vehicles
TM 38-470	Storage and Maintenance of Army Prepositioned Stock Materiel
TB 43-0216	Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment
AR 700-139	Army Warranty Program
AR 200-1	Environmental Protection and Enhancement
AR 385-10	The Army Safety Program

END OF WORK PACKAGE

OPERATOR MAINTENANCE
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

INTRODUCTION

Scope

This appendix lists components of end item and basic issue items for the PLS vehicles, trailers, and flatracks to help inventory items required for safe and efficient operation.

General

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

Section II. Components of End Item This listing is for informational purposes only, and is not authority for requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist in identifying the items.

Section III. Basic Issue Items These are the minimum essential items required to place the PLS vehicles, trailers, and flatracks in operation, to operate them, and to perform emergency repairs. Although shipped separately packaged, BII must be with the vehicle during operation and whenever it is transferred between property accounts. The illustrations will assist with hard-to-identify items. This manual is the authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

Explanation of Columns

The following provides an explanation of columns found in the tabular listings:

Column (1) - Item Number Gives you the reference number of the item listed.

Column (2) - National Stock Number (NSN) and Illustration. Identifies the stock number of the item to be used for requisitioning purposes and provides an illustration of the item.

Column (3) - Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (4) - Usable On Code When applicable, gives you a code if the item you need is not the same for different models of equipment. These codes are identified below:

INTRODUCTION - Continued

Code	Used On
074	Palletized Load System With Crane
075	Palletized Load System Without Crane
076	Palletized Load System Trailer
077	Palletized Load System Flatrack
IPF	ISO Compatible Palletized Flatrack
741	Palletized Load System A1 With Crane
751	Palletized Load System A1 Without Crane

Column (5) - U/I Unit of Issue (U/I) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) - Qty. Indicates the quantity required.

COMPONENTS OF END ITEM

Table 1. Components of End Item

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
1		NOT APPLICABLE FOR THIS MODEL	077, IPF		

Table 2. BASIC ISSUE ITEMS

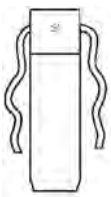
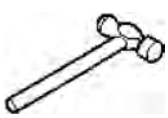
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
1	8105-01-394-5929 	BAG, TOOL (Located in flatrack stowage box) 199-1290(0B4P8)	IPF	EA	1
2	5315-01-435-0923	BAR, PRY, 12 in.x 7/16 in. (Located in flatrack stowage box) 12440500(OPZP2)	IPF	EA	1
3	4010-01-435-1914	CHAIN, 3/8 (with T-hook) (Located in flatrack stowage box) 12440499(OPZP2)	IPF	EA	2
4	5120-00-265-7462 	HAMMER, 2 lbs (Located in flatrack stowage box) BP32B(55719)	IPF	EA	1

Table 2. BASIC ISSUE ITEMS - Continued

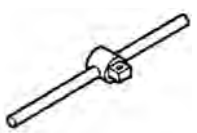
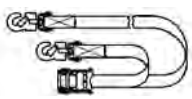
(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
5	5340-01-209-7841	HANDLE, EXTENSION, JACK (Located in flatrack stowage box) 1347720(45152)	IPF	EA	1
6	5120-01-242-7218 	HANDLE, SLIDING (Located in flatrack stowage box) 1505380(45152)	IPF	EA	1
7	3990-01-437-4331	LOAD BINDER, 3/8 RACHET (with T-hook) (Located in flatrack stowage box) 12440498(OPZP2)	IPF	EA	2
8	5130-01-113-1563	SOCKET (Located in flatrack stowage box) IM482(55719)	IPF	EA	1

Table 2. BASIC ISSUE ITEMS - Continued

(1) Illus No.	(2) National Stock Number (NSN)	(3) Description, Part Number/(CAGEC)	(4) Usable On Code	(5) U/I	(6) Qty Rqr
9	3990-01-366-1607 	TIEDOWN STRAP (Located in flatrack stowage box) FDC5770-5(98313)	077, IPF	EA	22

END OF WORK PACKAGE

OPERATOR MAINTENANCE
EXPENDABLE/DURABLE ITEMS LIST

Introduction

Scope

This appendix lists expendable supplies and materials that are needed to operate and maintain the PLS vehicles, trailers, and flatracks. These items are authorized by CTA 50-970. This appendix includes expendable items (except Medical, Class V, Repair Parts, and Heraldic Items) and consumable materials.

Explanation of Columns

Column (1) - Item Number This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (WP 0098, item 5)).

Column (2) - Level This column identifies the lowest level of maintenance that requires the listed item.

- C -- Operator/Crew
- O -- Unit/AMC
- F -- Direct Support/ASB
- H -- General Support
- D -- Depot

Column (3) - National Stock Number This is the NSN assigned to the item which you can use to requisition it.

Column (4) - Description This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (5) - Unit of Measure (U/I) Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable/Durable Supplies and Materials List

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
			Antifreeze	
1	O	6850-01-464-9125	Antifreeze 1-gallon can A-A-52624 58536	GL
			Antifreeze	
2	O	6850-01-441-3248	Antifreeze 55-gallon drum A-A-52624 58536	DR
			Antifreeze	
3	O	6850-00-441-3223	Antifreeze 55-gallon drum AA52624-1-A 58536	DR
			Antiseize Compound	
4	O	8030-00-155-6644	Antiseize Compound 16 oz aerosol can 76759 05972	CN
5	O	8030-00-251-3980	Antiseize Compound 1-pound can 034-000750 26916	LB
			Chips, Soap P-S-579	
6	O	7930-00-634-3935	Chips, Soap P-S-579 200-pound drum ASTM D 496 81346	DR
			Cleaning Compound	
7	O	6850-01-181-0273	Cleaning Compound 1-gallon MIL-C-87936 81349	GL
8	O	6850-01-184-7453	Cleaning Compound 5-gallon can MIL-C-87936 81349	CN

Table 1. Expendable/Durable Supplies and Materials List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
9	O	6850-01-184-3182	Cleaning Compound	
			Compound, Cleaning Windshield	
10	O	6850-00-926-2275	Compound, Cleaning Windshield 16-ounce bottle 0854-000 OFTT5	BT
			Fuel	
11	O	9140-00-286-5294	Fuel Bulk AA52557-2 58536	
12	O	9140-00-286-5295	Fuel 5-gallon drum AA52557-2 58536	
13	O	9140-00-286-5296	Fuel 55-gallon drum, 16 gage AA52557-2 58536	
			Grease, Automotive and Artillery (GAA) (MIL-G-10924)	
14	O	9150-01-197-7688	Grease, Automotive and Artillery (GAA) (MIL-G-10924) 2 1/4–ounce tube M-10924–A 81349	TU
15	O	9150-01-197-7693	Grease, Automotive and Artillery (GAA) (MIL-G-10924) 14 oz cartridge M-10924-B 81349	CA
16	O	9150-01-197-7690	Grease, Automotive and Artillery (GAA) (MIL-G-10924) 1 ¾-ounce can M-10924-C 81349	CN

Table 1. Expendable/Durable Supplies and Materials List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
17	O	9150-01-197-7692	Grease, Automotive and Artillery (GAA) (MIL-G-10924) 35 lb can M-10924-E 81349	CN
18	O	9150-01-197-7691	Grease, Automotive and Artillery (GAA) (MIL-G-10924) 120 lb drum M-10924-F 81349	DR
			Oil, Fuel, Diesel, DF-1, Winter	
19	O	9140-00-286-5286	Oil, Fuel, Diesel, DF-1, Winter Bulk AA52557-1 58536	
20	O	9140-00-286-5287	Oil, Fuel, Diesel, DF-1, Winter 5-gallon drum AA52557-1 58536	
21	O	9140-00-286-5288	Oil, Fuel, Diesel, DF-1, Winter 55-gallon drum, 16 gage AA52557-1 58536	
22	O	9140-00-286-5289	Oil, Fuel, Diesel, DF-1, Winter 55-gallon drum, 18 gage AA52557-1 58536	
			Oil, Fuel, Diesel, Regular	
23	O	9140-00-286-5294	Oil, Fuel, Diesel, Regular Bulk AA52557-2 58536	
			Oil, Lubricating OEA Ice, Subzero	
24	O	9150-00-402-4478	Oil, Lubricating OEA Ice, Subzero 1-quart can MIL-L-46167 81349	CN

Table 1. Expendable/Durable Supplies and Materials List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
25	O	9150-00-402-2372	Oil, Lubricating OEA Ice, Subzero 1-gallon can MIL-L-46167 81349	CN
26	O	9150-00-491-7197	Oil, Lubricating OEA Ice, Subzero 5-gallon can MIL-L-46167 81349	CN
			Oil, Lubricating, Gear GO 75 (MIL-L-2105)	
27	O	9150-01-035-5390	Oil, Lubricating, Gear GO 75 (MIL-L-2105) 1-quart can M2105-1-75W 81349	QT
28	O	9150-01-035-5391	Oil, Lubricating, Gear GO 75 (MIL-L-2105) 5-gallon can MIL-PRF-2105 81349	CN
29	O	9150-01-035-5394	Oil, Lubricating, Gear GO 75 (MIL-L-2105) 55-gallon drum J2360 81343	CN
			Oil, Lubricating, Gear GO 75 (MIL-L-2105)	
30	O	9150-01-035-5393	Oil, Lubricating, Gear GO 75 (MIL-L-2105) 5-gallon drum M2105-3-8090 81349	CN
			Oil, Lubricating, OE/HDO 10 (MIL-L-2104)	
31	O	9150-00-189-6727	Oil, Lubricating, OE/HDO 10 (MIL-L-2104) 1-quart can M2104-1-10W 81349	QT

Table 1. Expendable/Durable Supplies and Materials List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
32	O	9150-00-177-3988	Oil, Lubricating, OE/HDO 10 12–quart can MIL-PRF-2104 81349	QT
33	O	9150-01-496-1939	Oil, Lubricating, OE/HDO 10 (MIL-L-2104) 55-gallon drum, 16 gage	
34	O	9150-00-191-2772	Oil, Lubricating, OE/HDO 10 (MIL-L-2104) 55-gallon drum, 18 gage MIL-PRF-2104 81349	DR
			Oil, Lubricating, OE/HDO 30, (SAE 30)	
35	O	9150-00-186-6681	Oil, Lubricating, OE/HDO 30, (SAE 30) 1-quart can M2104-1-30W 81349	QT
36	O	9150-00-188-9858	Oil, Lubricating, OE/HDO 30, (SAE 30) 5-gallon can MIL-PRF-2104 81349	CN
37	O	9150-00-189-6729	Oil, Lubricating, OE/HDO 30, (SAE 30) 55-gallon drum MIL-PRF-2104 81349	DR
			Oil, Lubricating, OE/HDO 40 (SAE 40) (MIL-L-2104)	
38	O	9150-00-189-6730	Oil, Lubricating, OE/HDO 40 (SAE 40) (MIL-L-2104) 1-quart can MILL2104 81349	QT
39	O	9150-00-188-9865	Oil, Lubricating, OE/HDO 40 (MIL-L-2104) 5-gallon drum MIL-L-2104 81349	CN

Table 1. Expendable/Durable Supplies and Materials List - Continued

(1) Item No.	(2) Level	(3) National Stock Number (NSN)	(4) Item Name, Description, Part Number/ (CAGEC)	(5) U/I
40	O	9150-00-188-9862	Oil, Lubricating, OE/HDO 40 (MIL-L-2104) 55-gallon drum MIL-PRF-2104 81349	DR
41	O	9150-00-405-2987	Oil, Lubricating, OE/HDO 40 (MIL-L-2104) bulk	
			Plug, Ear	
42	O	6515-00-137-6345	Plug, Ear 4-375 89875	BX
			Rag, Wiping	
43	O	7920-00-205-1711	Rag, Wiping 50 pound bale 7920-00-205-1711 64067	BE
			Cleaning Compound, Solvent	
44	O	6850-01-474-2319	Cleaning Compound, Solvent 1 gallon can MIL-PRF-680 Type II 81439	GL
45	O	6850-01-474-2317	Cleaning Compound, Solvent 5 gallon can MIL-PRF-680 Type II 81439	CO
46	O	6850-01-474-2316	Cleaning Compound, Solvent 55 gallon drum MIL-PRF-680 Type II 81439	DR
			Wire, 16 Gage	
47	O	6145-01-074-7535	Wire, 16 Gage 1927FX 45152	FT

END OF WORK PACKAGE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS

For use of this form, see AR 25-30; the proponent agency is OAASA

Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).

DATE

Date you filled out this form.

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*

U.S. Army TACOM Life Cycle Management Command
ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727
6501 E. 11 Mile Road, Warren, MI 48397-5000

FROM: *(Activity and location) (Include ZIP Code)*

Your mailing address

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM Number	*Date of the TM*	*Title of the TM*

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)
	0007-3 0018-2					Figure 2, Item 9 should show a lockwasher. Currently shows a flat washer. Cleaning and inspection, Step 6, reference to governor support pin (14) is wrong reference. Reference should be changed to (12).

SAMPLE

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name	*Your Phone Number*	*Your Signature*

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location) (Include ZIP Code)*	DATE
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727 6501 E. 11 Mile Road, Warren, MI 48397-5000	*Your Address*	*Date you filled out this form*

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM Number	*Date of the TM*	*Title of the TM*

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks, or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

SAMPLE

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name	*Your Phone Number*	*Your Signature*

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS

For use of this form, see AR 25-30; the proponent agency is OAASA

Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).

DATE

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*

U.S. Army TACOM Life Cycle Management Command
ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727
6501 E. 11 Mile Road, Warren, MI 48397-5000

FROM: *(Activity and location) (Include ZIP Code)*

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-3990-206-10	31 MAY 2017	OPERATOR MANUAL FOR PLS FLATRACK M1077/M1077A1 NSN 3990-01-307-7676 ISO COMPATIBLE IPF M1 NSN 3990-01-406-1340

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location) (Include ZIP Code)*	DATE
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727 6501 E. 11 Mile Road, Warren, MI 48397-5000		

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 9-3990-206-10	31 MAY 2017	OPERATOR MANUAL FOR PLS FLATRACK M1077/M1077A1 NSN 3990-01-307-7676 ISO COMPATIBLE IPF M1 NSN 3990-01-406-1340

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks, or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-3990-206-10	31 MAY 2017	OPERATOR MANUAL FOR PLS FLATRACK M1077/M1077A1 NSN 3990-01-307-7676 ISO COMPATIBLE IPF M1 NSN 3990-01-406-1340

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location) (Include ZIP Code)*	DATE
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727 6501 E. 11 Mile Road, Warren, MI 48397-5000		

PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 9-3990-206-10	31 MAY 2017	OPERATOR MANUAL FOR PLS FLATRACK M1077/M1077A1 NSN 3990-01-307-7676 ISO COMPATIBLE IPF M1 NSN 3990-01-406-1340

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks, or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-3990-206-10	31 MAY 2017	OPERATOR MANUAL FOR PLS FLATRACK M1077/M1077A1 NSN 3990-01-307-7676 ISO COMPATIBLE IPF M1 NSN 3990-01-406-1340

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TM 9-3990-206-10
31 May 2017

By Order of the Secretary of the Army:

MARK A. MILLEY
General, United States Army
Chief of Staff

Official:

GERALD B. O'KEEFE
Administrative Assistant to the
Secretary of the Army
1712502

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THE METRIC SYSTEM AND EQUIVALENTS

Linear Measure

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

Weights

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Pounds
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

Liquid Measure

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

Square Measure

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

Cubic Measure

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

Temperature

9/5 °C +32 = °F
5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius

APPROXIMATE CONVERSION FACTORS

To Change	To	Multiply By
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Sq Inches	Sq Centimeters	6.451
Sq Feet	Sq Meters	0.093
Sq Yards	Sq Meters	0.836
Sq Miles	Sq Kilometers	2.590
Acres	Sq Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

To Change	To	Multiply By
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Sq Inches	0.155
Sq Meters	Sq Feet	10.764
Sq Meters	Sq Yards	1.196
Sq Kilometers	Sq Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

PIN 084912-000